THE OIL WEEKLY

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11-15	**American Chemical Society, Boston, Mass.**
13-15	**National Petroleum Association, Atlantic City, N. J.**
OCT.	
4- 6	**American Institute of Mining & Metallurgical Engineers, Petroleum Division, Galveston, Texas.**
5- 7	**Texas Mid-Continent Oil & Gas Association, Houston, Texas.**
9-10	**American Gas Association Annual Convention, New York.**
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18-20	**Independent Petroleum Association of America, Fort Worth, Texas.**
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NOV.	
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15-17	**American Institute of Chemical Engineers, Providence, R. I.**
DEC.	
4- 7	**American Society of Mechanical Engineers, Philadelphia.**
APR.	
11-12	**American Petroleum Institute, Eastern District, Division of Production, Columbus, Ohio.**

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THE OIL WEEKLY

AUGUST 14, 1939

VOLUME 94 NUMBER 10

The Week's Panorama

SOME encouragement was offered by the latest statistics of the oil industry, covering the week ended August 5.

Crude runs to refinery stills were reduced 15,000 barrels a day, and gasoline inventories were lowered 1,456,000 barrels, a fairly satisfactory reduction. If similar weekly withdrawals should be made regularly during the remainder of August and in September, the gasoline inventory would be down near an economic level at the beginning of the fall-winter season of lighter consumption.

New Production Peak . . .

Although the jumping of crude oil production to a new all-time peak of 3,909,400 barrels daily in the week ended August 5 was somewhat alarming, the spurt was due largely to lifting of shutdowns in Texas on the fifth Saturday and Sunday of July.

Allowables for August promise a fairly successful balancing of the nation's crude production with demand during this month.

Cole Committee . . . . . .

The Cole congressional committee will begin its investigation of the oil industry with a week's hearing early in October, and will subsequently visit and hold hearings in Louisiana and Illinois.

TNEC Views Oil . . . . . .

The coming fall will bring investigation of the petroleum industry by the Temporary National Economic Committee. Several oil company officials already have submitted to the committee's Chairman O'Mahoney statements that will be offered at the fall hearings.

The members of the committee will study these statements in preparation for their study of the industry, and later will schedule hearings.

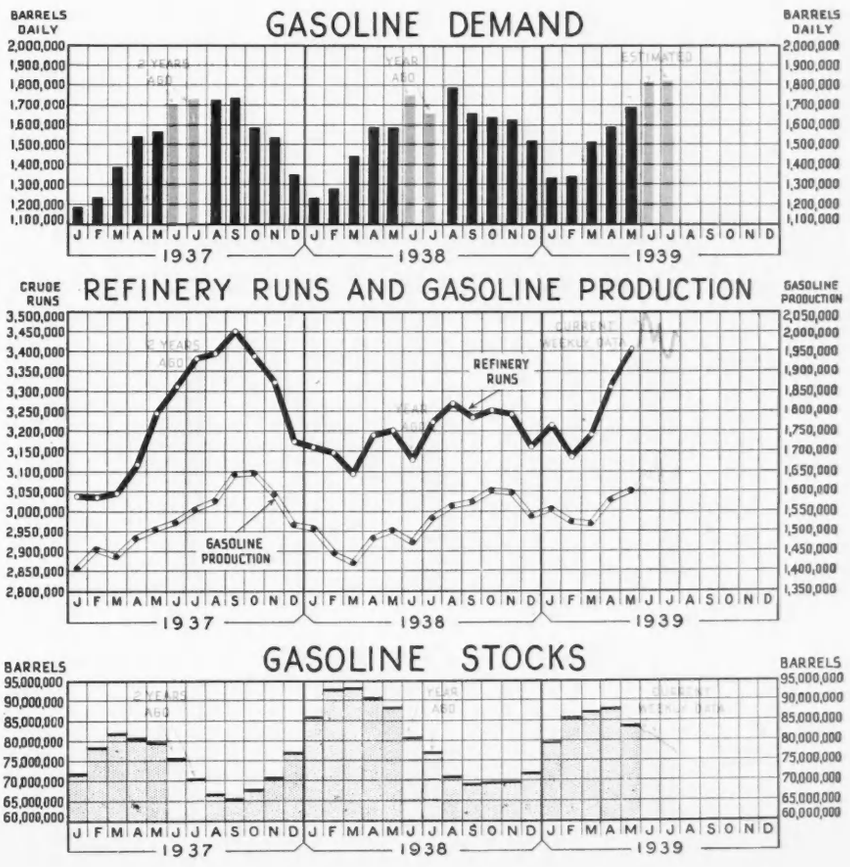
East Texas Proration . . .

August 16 has been set by the Texas Railroad Commission as the date for hearing the application for higher East Texas allowables by Humble Oil & Refining Company, largest producer in the field. Similar hearings have not yet been scheduled for several other companies that have applied for higher quotas.

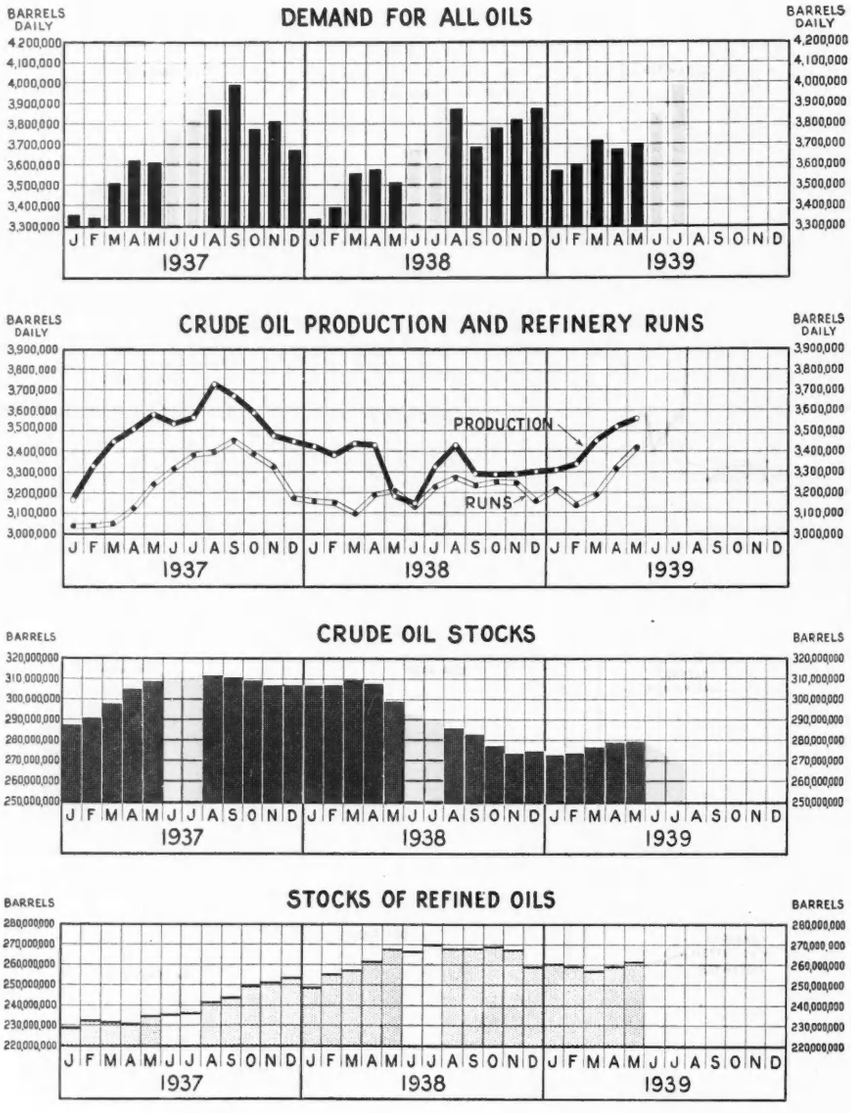
These requests for higher allowables have followed the success of Rowan & Nichols in gaining higher allowables through intervention of a United States district court.

Rowan & Nichols gained another victory August 5 when Federal Judge R. J. McMillan at San Antonio ordered the Federal Tender Board at Kilgore to issue tenders permitting the company to move in interstate commerce the oil being produced from the lease involved in the litigation. The board previously had refused to grant tenders on the oil, despite the court order that authorized a doubling of the allowable of the lease; the board having ruled that the oil was not produced in accordance

Refinery Runs Lower and Gasoline Stocks Cut



High Crude Output Due to Temporary Texas Rise



with the railroad commission order.

Equipment Exports . . . .

Exports of oil field and refinery machinery and equipment have been running about the same this year as last year, the shipments being comparatively large, as exploration and exploitation abroad continue active.

The Bureau of Foreign and Domestic Commerce has reported that exports of petroleum and gas well drilling apparatus and parts in June had a value of $1,554,142, while exports of other petroleum well and refining machinery and parts amounted to $1,940,373.

Lybian Hopes . . . . . .

Drilling machinery recently purchased in the United States by Italy will be used in Lybia, where the government has hopes of finding oil.

Minerals Yearbook . . . .

After August, 1939, the complete volume, *Minerals Yearbook, 1939*, covering all mineral commodities, may be purchased from the Superintendent of Documents, Washington, D. C.

This yearbook of the Bureau of Mines will embody a review of 1938 and final statistics for 1937.

The chapter on "Crude Petroleum and Petroleum Products," has been preprinted and is offered for sale by the Superintendent of Documents for 15 cents.

Similarly, the chapter on "Natural Gasoline and Liquefied Petroleum Gases" has been preprinted and is for sale by the Superintendent of Documents for 5 cents.

Oil Industry Offspring . . .

Exploration for oil has been largely or wholly responsible for development of five other important mineral industries: natural gas, sulphur, helium, natural carbon dioxide, and potash.

Half of all current United States production of natural gas, supplying heat and power to homes and industry, occurs and comes to the surface along with petroleum from oil wells. The remainder comes from dry-gas wells, most of which were drilled for petroleum.

Sulphur, used largely in industry, was discovered on a Louisiana salt dome by an oil prospector.

The world's only commercial production of helium comes from wells in the Texas Panhandle that yield natural gas rich in helium.

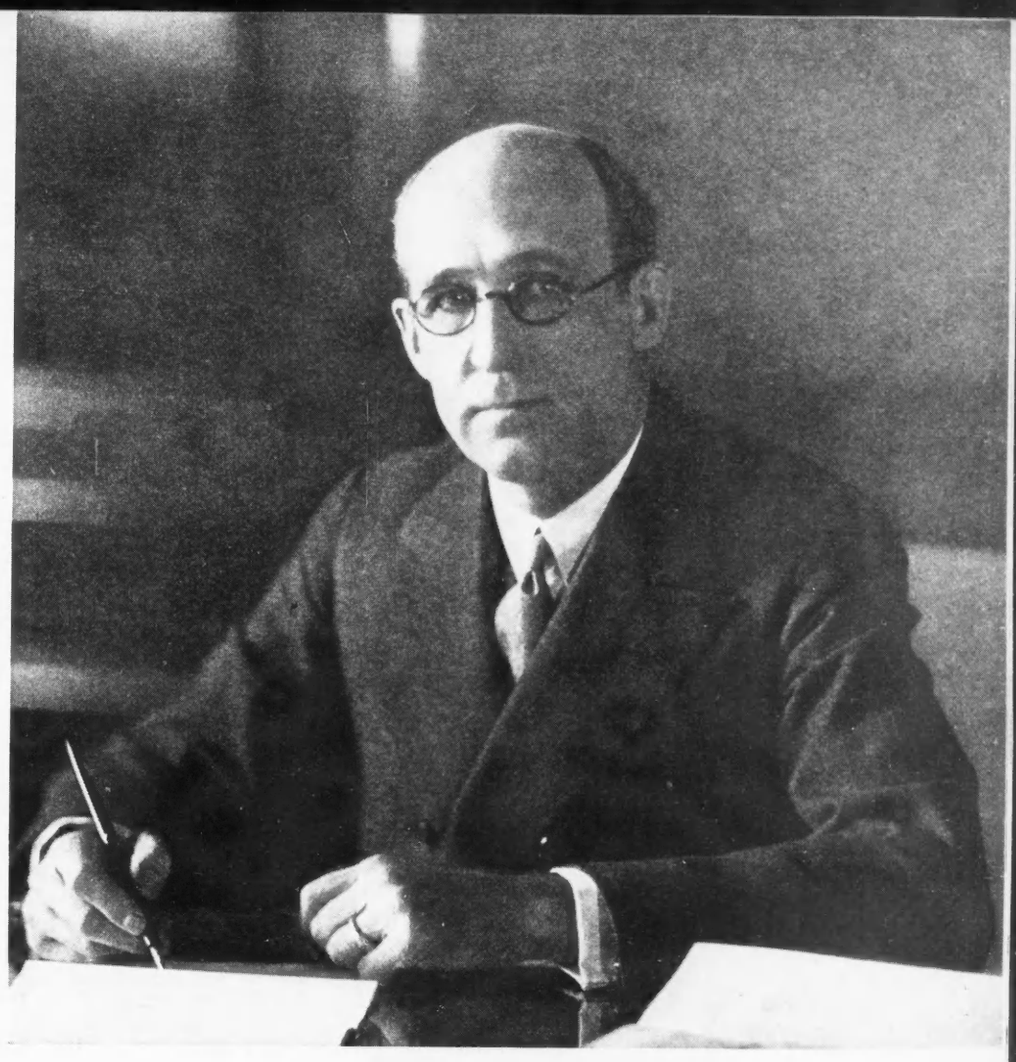
Solid carbon dioxide, dry ice, desirable refrigerant for long-distance shipments, was discovered in large quantities in the course of oil drilling in New Mexico, and now is being produced in that state and in Montana, Colorado, Utah, and California.

Potash, important industrial raw material, formerly imported, was found in large quantities in New Mexico through information developed in oil well drilling.

Alaskan Wildcats . . . . .

Two American oil companies are drilling two deep oil tests in Alaska. One well is over 7000 feet deep, and has had several oil and gas showings. It already has cost $700,000, but hopes are held that oil in commercial quantity will be encountered this summer. The test is on the Iniskin-Chinitna peninsula, and the inaccessibility of the region and various difficult drilling conditions have been responsible for the large cost. The other test is in the same general area.

Complete details on the two Alaskan tests have appeared in this publication. Issues that embodied information included those of June 29, 1936; October 26, 1936; February 8, 1937; February 22, 1937 (feature article); September 20, 1937; February 28, 1938; May 9, 1938; September 19, 1938; September 26, 1938.



THE OIL WEEKLY is indebted to the author and to *The Mines Magazine*, official organ of the Colorado School of Mines Alumni Association, for the opportunity of presenting to the oil industry this vital discussion of present and future oil field economics. The article originally appeared in the fourth annual petroleum edition of *The Mines Magazine*, June, 1939, under the title: "Streamlined Science Needs Horse-Sense Economics."

Sound Economics Must Be Teamed With Science in Future Course of Oil

By FRANK PHILLIPS
Chairman, Phillips Petroleum Company

SOMEONE aptly has said that the oil industry has conquered Mother Nature, but still has ahead of it the job of conquering *human nature*. It is a fact that science has revolutionized all branches of the petroleum business. The significant thing about this amazing evolution, however, is that most of it has occurred within the space of only a relatively few recent years. Formerly the industry progressed and prospered because supply could not catch up with an ever-growing demand for petroleum products. Under such conditions, it did not appear important to operate at a maximum of efficiency or to utilize the meager scientific knowledge which already was available. For several years, supply has been greatly in excess of current needs, even though demand continues to mount higher each succeeding year.

The oil business is a combination of several individual industries or, perhaps better said, an integration of successive operating stages. These are exploration, which is the search and discovery effort; development and production, the mining operation; transportation, the movement of raw and finished products; manufacturing, the transformation of raw materials into usable items; and marketing, the distribution of finished products to ultimate consumers. When the capacities of these several stages finally surpassed the nation's demands upon them, it became obvious that the willing hand of science could no longer be expected to do the job

COMPETITIVE DEVELOPMENT CAUSES WASTE — This well in the famous Burbank pool of Osage County, Oklahoma, was drilled fourteen years ago under competitive development conditions. It symbolizes the relentless application of the so-called "rule of capture." At present, natural gas from distant fields is being compressed and re-injected into the producing sand in a belated attempt to rectify the errors of an earlier day.

alone. There henceforth must be a greater regard for the economic aspects of each situation. The necessity for the oil man to depart from his traditional and deep-seated respect for rule-of-thumb methods, hunches, and gamble was a bitter pill for some to swallow. But inefficient practices had to be thrown overboard in favor of more orderly methods of management and operation; there remained no other path to follow.

It is now generally recognized, both by those within the industry and outside of it, that technical effort has rendered meritorious service to petroleum. Furthermore, technology now has developed so great a momentum that its future accomplishments are certain to be more spectacular even than the miracles it has performed heretofore. To trace only the more important technical and scientific developments which are now transforming the separate stages of the oil industry would be very interesting. To do so, however, would require a much too extended discussion. Your attention, therefore, is directed only to that which undoubtedly is the most perplexing problem now prevailing in any part of the industry. I refer to the necessity of reinforcing the great accomplishments in production science, by harnessing them up with an equally effective use of economics. Present economic practice is badly out of step with science. The oil industry hereafter must rely on only that kind of economic judgment as will enable the oil producer to operate at a reasonable profit—yes, even survive—under this new order which has forced itself into the picture and which, unfortunately, is here to govern the industry's progress for a long time to come.

It seems incredible that so many of the individuals comprising this great and basic industry should stubbornly resist doing the things which, deep down in their own hearts, they are convinced they will have to do eventually to remain in the business. The only explanation for such reluctance is that they are clinging, with unjustified hope, to the faint possibility that some now unforeseen development may occur to correct their economic plight for them. Such operators are in a groove, but they will some day, perhaps too late, realize that they cannot continue in it.

To set the stage for a better understanding of these economic difficulties which now confront the producing stage of the oil industry, we should review briefly their historic background. The basic laws behind the mining of petroleum are different in many respects from those governing the mining of other minerals, such as coal, gold, iron or copper. Oil is migratory and does not "stay put" in its original location underground, such as do the solid minerals. Unfortunately, when one operator drills to recover the oil beneath his land, he so disturbs the equilibrium of the contents of the underground reservoir that the oil beneath his neighbor's land also starts to move toward the well that has been completed.

Early laws defining ownership of oil were based on the theory that oil is like wild animals—that both move about from one property to another and become the possession of that individual whose property they happened to be visiting at the time of capture. This theory of law is commonly known as "the rule of capture." Its application is reflected in the competitive manner by which oil pools have been developed since Drake drilled his first well near Titusville, Pennsylvania, in the year 1859. Under such a principle of ownership, the only way that one landowner can protect his own petroleum deposits is to match the efforts of his neighbor—to drill as many wells as he does, complete them at the same time, and locate them in similar offsetting positions. It is like a tug-of-war; one team will lose to the opposing side unless it duplicates the efforts that are being applied at the other end of the rope. This kind of competitive game ignores economic considerations.

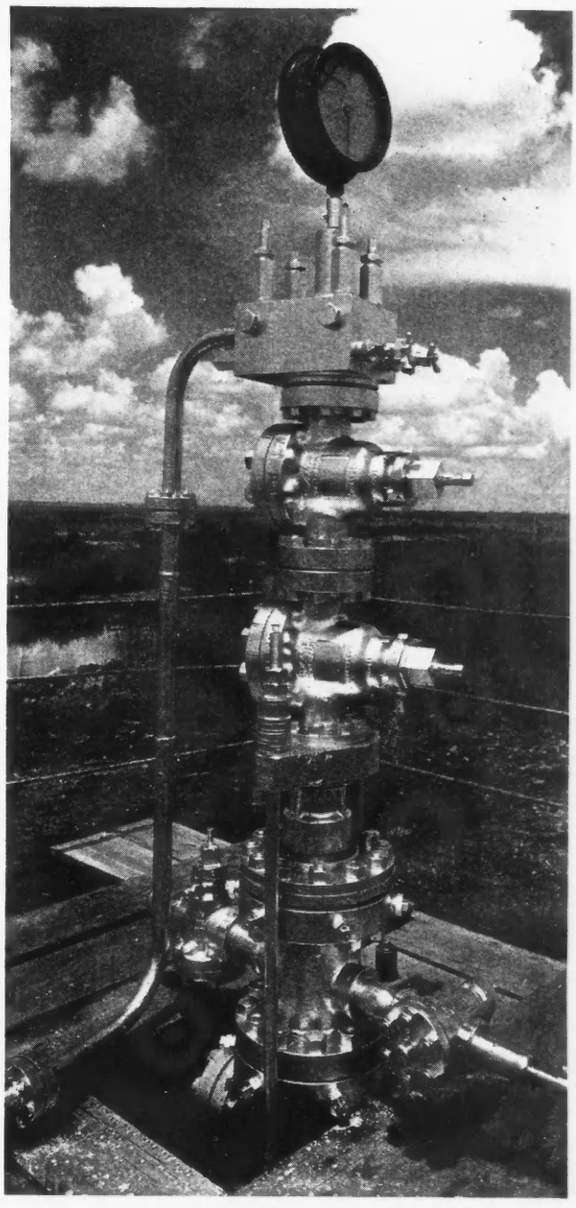
The industry is beginning to become conscious of the serious waste that has been caused by blind ad-

herence to the dictates of the "rule of capture." It must conclude, however, that something shall be done to side-step the still compelling influence of this legal principle, so that orderly development of jointly-owned oil reservoirs can be realized and unnecessary wells be avoided.

The first real attempt to control the rate of oil production was made by the Corporation Commission of the state of Oklahoma in 1929 under the conservation laws passed by the legislature of that state in 1915. This effort was founded on the principles of eliminating waste of a valuable natural resource and of providing equity by proper allocation of the state's market demand among each and every individual well producing within its boundaries. Since that time, other oil-producing states have enacted similar types of conservation laws. After a series of development steps and dramatic court tests, these laws now form a framework for a much more effective, but still inadequate, measure of control over the output of the wells within the affected states.

These processes of regulation by legislation, to eliminate physical waste and to restrict production to actual market demand, are embraced in the general term "conservation." Allocation of a state's total market demand among the pools within the state and each pool's allowables among the individual wells within that pool is called "proration." This entire regulatory system is unique among the industries of the nation and, although it has been designed with the aim to conserve an essential natural resource and to provide equity to the owners of underground petroleum, it nevertheless has contributed to the unbalanced economic situation which is now approaching a crisis.

Scientific methods of exploration have increased our nation's discoveries of proven underground oil reserves to the point that at the first of this year they were estimated to be in excess of 17 billion barrels. Our current withdrawals approximate one and a quarter billion barrels per year. With many more new pools to be discovered in the future, we should not even hope that market demand may so greatly increase or that available current supply may so greatly decrease that a natural balance will be restored, except after many years. Certainly, no semblance of stability can prevail without regulations of the general character of those embodied in state conservation legislation, sound technical practices, and a profound respect for economic facts.



SCIENTIFIC METHODS PAY DIVIDENDS —The natural lifting energy of the reservoir gas is being efficiently utilized in this well, which will flow for many years and return to its owner a worthwhile earning due to low operating costs and greater oil recovery. Technical knowledge and skill can work wonders if given a chance. Unitization is one sure way of providing such an opportunity.

Allowable production per well already has declined to such a low figure that the cost of producing a barrel of oil has been greatly increased. It is obvious that the total expense of operating a well flowing 500 barrels of oil per day is little greater than that of operating the same well flowing only 30 or 40 barrels per day. But the most serious phase of our present situation lies in a continued determination on the part of many operators to drill new wells far beyond any economic justification for such a procedure.

That you might gain some idea of the rate at which new wells are being drilled, these figures represent average completions per day—1933, 34; 1934, 50; 1935, 59; 1936, 71; 1937, 89; 1938, 74; and so far in 1939, 64. Approximately 25,000 new wells will be added this year to the 380,000 which are already producing.

It is a significant fact that there would be no available excess supply today if all wells now producing at inefficient rates were adjusted to their proper rates of output. With adequate technical data at hand, engineers can generally agree as to the most efficient rate of withdrawal for any pool. Inefficient withdrawal rates cannot exist except to create waste, and waste of a valuable natural resource, so essential to the welfare and defense

of the nation, should not be tolerated longer. If the petroleum reserves of the United States were inadequate to meet the demand, such as is the case with many otherwise powerful foreign nations today, wasteful methods would not be a commonplace circumstance here in this country.

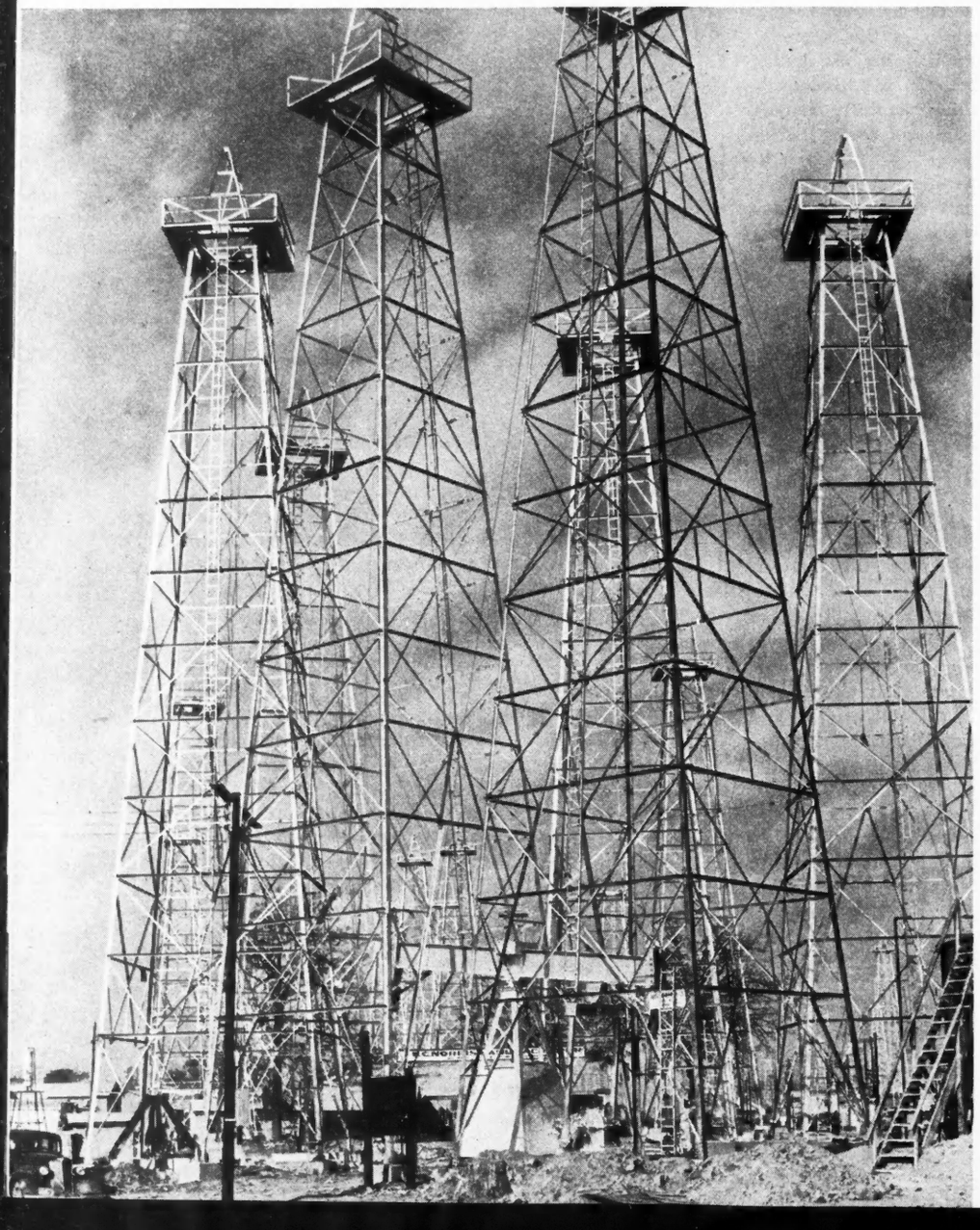
Today's deep wells are much more expensive than those of earlier times. Frequently they cost from $50,000 to $200,000 each. The Drake well of 1859 was only 69½ feet deep. After 40 years, wells were being drilled only as deep as 1200 feet. By 1924 a depth of 7000 feet had been reached, and now the record is 15,000 feet. There are many wells now producing from below 10,000 feet.

There are two important routes by which capital expenditures and operating expenses for producing oil can be held within economic reason. These are unitization and wider well spacing. Unitization disregards man-made boundary lines which exist on the surface above a nature-made oil reservoir, or pool. It effects a restriction of the opportunities of capture so that unnecessary development costs can be avoided and economy in operating expenses can be accomplished. Under unit methods several lease owners merge their interests into a common ownership and designate one operator to develop and produce the properties in a non-competitive and scientifically proper manner.

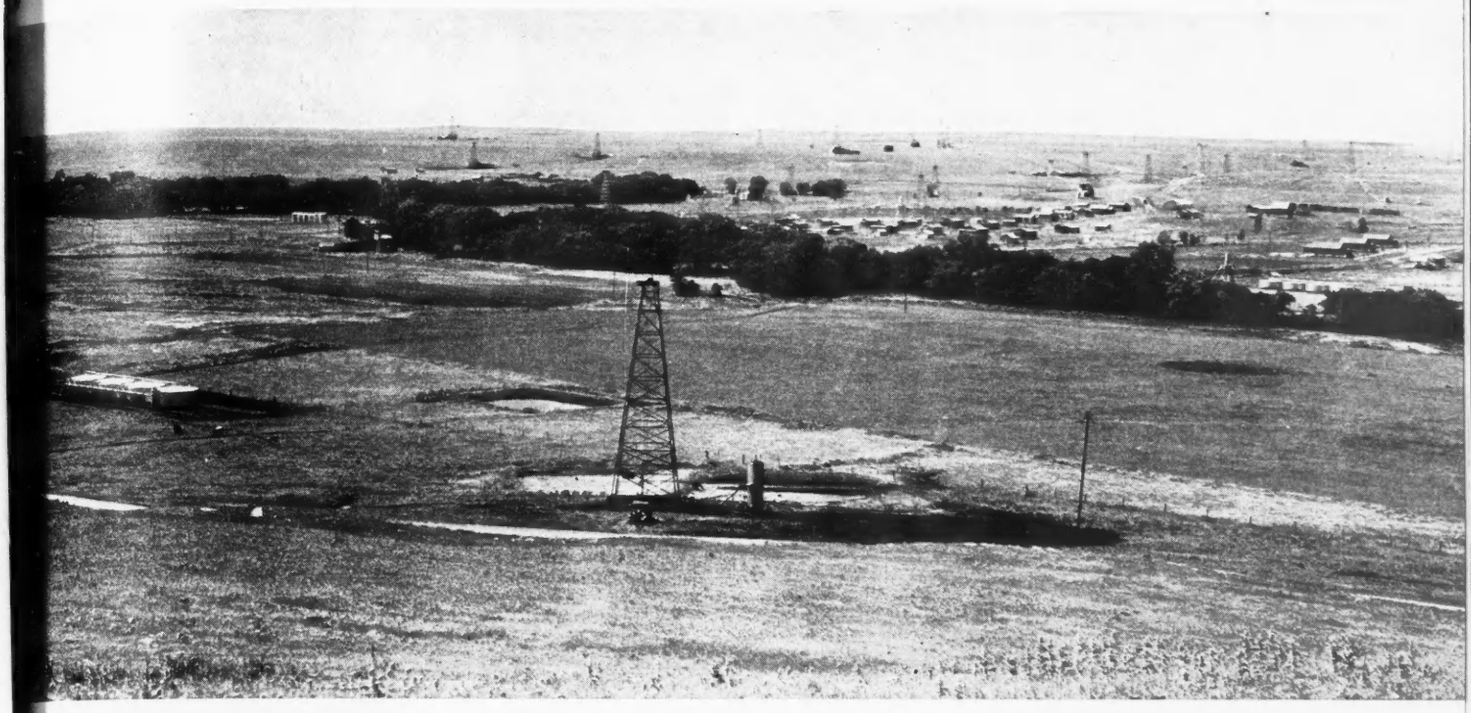
The ideal time to unitize acreage is while the leases are being taken. This means that oil company land representatives should show much greater regard for a sizeable tract than for several small scattered leases of equivalent total area. Unitization can be accomplished by consolidating undeveloped leases before drilling the initial test well, it may be effected after partial development of the pool has taken place, or it may be done after the pool has been completely developed. A satisfactory distribution of ownership among the contributing parties is easier if unitization is attempted prior to the drilling of the first well. It is more difficult in the midst of development.

The tremendous advantages of unitization can be illustrated by reference to two of the many pools in which my own company is a lease owner and has attempted unitization. In the unit project at Billings, Oklahoma, involving a pool covering hardly more than one square mile, scientific development has accomplished a saving of $500,000 by eliminating unneeded additional wells and pumping equipment, even though this pool was almost fully developed before unitization was consummated. Proper utilization of reservoir energy also will reduce operating costs by another $1,500,000. Ultimate oil recovery will be increased at least 25 percent.

In the second case, we were unable to convince certain other lease owners that they should combine their interests with ours. Here unitization would have eliminated the drilling of 65 deep wells at a cost of $80,000 each. Even after the addition of equipment necessary for injecting natural gas into the producing horizon to maintain reservoir pressure, the saving in development costs alone would have amounted to $4,500,000. Additional savings in operating and overhead expenses, through scientific withdrawal practices and mass production methods conducted by one, instead of several operators, were estimated to be 12 cents per barrel, or $4,500,000. Unitization, coupled with an effective pressure maintenance program which it would have permitted, would have recovered 53,000,000 barrels of oil instead of only 38,000,000 barrels, to be obtained under present non-unitized methods. Multiply the



UNSOUND ECONOMICS THROUGH UNCOORDINATED EFFORT—Division of lease ownership in this spot in the great East Texas field has brought about an almost inconceivable waste of development investment and a permanently excessive operating expense for producing the oil below these small tracts of land. Conservation statutes which encourage economic waste of this character should be revised at the earliest opportunity. Too many similar situations prevail in the different oil-producing states.



PROFITABLE ACHIEVEMENT THROUGH COOPERATION—This is the South Burbank Pool of Osage County, Oklahoma. It is a unitized project embracing a producing reservoir whose characteristics duplicate those of the old Burbank Pool adjoining it. However, through scientific producing methods, made possible by unit operation, South Burbank already has recovered 6500 barrels of oil per acre and every well that flowed initially is still flowing. Contrast this with Old Burbank, where the average recovery was only 2000 barrels per acre by natural flow before resorting to artificial lifting methods. In addition, over 2½ million dollars in development costs were saved by unitizing.

waste involved in situations of similar nature and you have a problem with a definite public interest angle to it.

Why does unitization so greatly reduce development and operating costs and increase ultimate recoveries? Why is a "unit" necessary to obtain the advantages and economies of proper reservoir operation? The answers to these questions are obvious, once one visualizes what actually goes on inside the underground reservoir. Let us therefore transfer our viewpoints to that hypothetical location.

The petroleum we are seeking to reduce to possession and sell at a profit, after paying all development and production costs, is contained in the small pore spaces of the producing horizon, closely associated with natural gas under pressure, forming a solution. This oil-gas solution is ordinarily compressed from the edges of the reservoir by water under hydrostatic pressure, and perhaps cushioned at the top of the structure by free gas constituting the so-called gas cap. So long as reservoir pressure is maintained, the gas will remain in solution with the oil, and the mixture will move freely through the porous "sand." If the pressure is wasted and the gas prematurely released, however, so that it passes to the well bore ahead of the oil, ultimate recovery is greatly decreased because the remaining fluid becomes "thicker" and less mobile.

Oil reservoirs do not deplete themselves by complete withdrawal of the oil itself; the natural motive power finally fails and causes well abandonment. One operator, controlling an entire pool, has no incentive to develop his properties in a manner which will require unnecessary investment, higher operating costs, and a lower ultimate recovery than is proper. Neither do the joint participants in a unit. The "holdout," or "nuisance value" lease-holder, who retards other operators when they desire to unitize, would never develop a pool all his own in the manner he contends the one in which he is but a small owner should be developed.

The problem of equity in forming a unit is one of the big stumbling blocks, and it should be recognized from the start that no participant can be entirely satisfied with the share which he will be allotted in any unit. Even at that, why should anyone forego participating when the ownership share that he receives will produce for him a far greater profit than that which he otherwise will be able to secure from the separate operation of his properties?

It seems inconceivable that one great difficulty in the forming of units is convincing one's self that the other fellow can operate oil properties efficiently. A stock excuse of the reluctant prospect is that only he is capable of properly taking care of his existing employes and that they can't be transferred to other of his operations. All these difficulties can be solved if there is a determination that they shall be solved. It would seem that the actual legal, technical and economic problems should create the main troubles, but ways have been found to solve these. It is really the intangible, superficial and personal features that cause the headaches.

Although it is reported that there are now some 185 oil pools operating under one form or other of unit procedure, I believe there are very few participants who, after experiencing the advantages of unitization, have felt that they would have been as well off in undertaking to develop and operate their properties individually.

In my opinion, unitized pools eventually will determine the price level for crude oil. Their greater economy will begin to reflect itself

in the industry's over-all picture as advocates of unitization create a sufficient number of units to affect an appreciable proportion of their daily production. The operator who refuses to investigate, advocate, and participate in unitization projects and their affiliated progressive methods is going to find himself gradually falling behind the parade. The reader may wonder why any one company should so aggressively try to sell other companies on taking advantage of the economic opportunities in scientific production, made possible by unitization. It is because units cannot be made by one company alone. So far as those operators are concerned who have leases in pools where our company holds properties, we are going to do our utmost to point out to them that they and ourselves can profit greatly by working together. If it were within the power of one operator to form these units alone, no company would spend the sums of money that a few advocates are spending in their efforts to convince others to also wake up and share the benefits. It is largely a matter of the survival of the fittest, and I, at least, am convinced that there will never be a better time to "get fit" than right now.

Stockholders, bondholders, bankers, equipment supply companies, and other investors have put money into oil enterprises with the hope that those with whom they are entrusting their money will do every reasonable thing within their power to derive the greatest return from the investment. Profits depend largely upon management's skill and ingenuity. Therefore, it does not seem possible that those in charge of any oil company would so thoughtlessly elect to deny its investors a profit opportunity of unitization magnitude, just because of a selfish interest, personal pride, or some other superficiality.

Borrowed capital develops oil properties. Financial institutions and supply companies therefore should realize that the collateral behind loans to oil operators who choose to develop properties competitively, rather than cooperatively, does not have the stability that it would have under unitization. In these days of low allowables and long time payouts, the unnecessarily high operating costs of inefficient recovery methods can well consume the collateral behind production loans, resulting possibly in ultimate bankruptcy to the obstinate operator and disappointment to the lender, to say nothing of the damage to innocent neighbors.

Various associations and organizations exist within the oil industry. Every one of these should get behind this idea of unitization, in a more aggressive manner. In every way available to them, they should promote the advantages of unitization. Some of these organizations are already toying with the idea, but on a scale which some day will certainly be considered half-hearted. Others are reluctant even to do anything. The whole problem is an educational and sales job. So frequently it has been said that gold bricks cannot be sold on Broadway. Trade journals also must help by publicizing the many successful unitization projects that are now operating, especially pointing out the manner in which the many difficulties encountered were finally overcome.

Our state conservation legislation also must be improved so that unitization will be easier to accomplish. I am advised that, under certain circumstances, compulsory unitization is constitutional. It seems unreasonable that legislation might ever need be relied upon to compel an individual operator to conduct his business so that he will keep from going broke. But that is exactly what will eventually have to be done if large unitization projects are to be saved from the selfish clutches of one or two small dissenters. Those who are eager to capitalize upon the advantages that science and experience have proved to be available are not motivated alone by a generous concern for the welfare of the non-believer who insists on producing wastefully. Unscrupulous operators, however, not only destroy the stability of the markets by flooding them with their production, but they cheat efficient operators out of the oil which they are entitled to produce.

What then, in summary, are the major differences between unit operation and competitive operation? In general, fewer wells are needed; there is maximum economy of operation; reservoir control is made practical; individual risk is minimized; a stabilizing effect is imposed on the market; an investment results that is more salable and on which loans can be readily obtained; it increases per acre yield of oil; an increased value is created for the gas; it permits adjustment of production rate to the producers' needs; it effects savings on pipe lines, storage tanks and plant capacity; and it makes possible the practices of pressure maintenance, repressuring, recycling, and water flooding. Unit operation should have a special appeal to every small operator, for it provides the only channel through which he can share in improved methods of operation, otherwise available only to big operators who may control entire pools and compete in the same markets. The small operator certainly should be "unit conscious."

Let us now turn our attention to the problem of proper well spacing. Until recent years, wells were spaced arbitrarily, with little or no regard to technical considerations which control effective drainage of producing sands. The economics of this problem have received little real consideration. Today we know that wider well spacing than has been the custom of the past, when coupled with conservation of reservoir pressure, results in a more thorough drainage of the producing horizon than does close spacing and unscientific producing methods. At any rate, what argument is there in favor of close well spacing if it causes the venture to be unprofitable, when the wider spacing would permit the venture to be profitable?

Fewer wells per unit of area are the key to this big economic puzzle. Take the state of Texas, for instance, where over half of this nation's known oil reserves are located. Five years ago, the average daily production of all wells subject to proration in that state was 40.8 barrels. Last year, this daily average production for proratable wells had declined to 23.7 barrels. It has been forecast that, under a continuation of present drilling policy, four years from now the average daily production from proratable wells will be down to approximately 14 barrels. It is obvious to anyone who considers this question, therefore, that additional drilling of wells simply causes further sub-division of the available market demand among a greater number of wells. At the same time it increases investment per barrel and producing cost per barrel. Irrespective of all other considerations, including technical and scientific ones, bare economics demand that we drill fewer wells. Obviously, the practical way to drill fewer wells is to increase the number of acres to be drained by new wells, and accompany this wider spacing with efficient reservoir control.

For the East Texas field alone, it has been estimated that over 200

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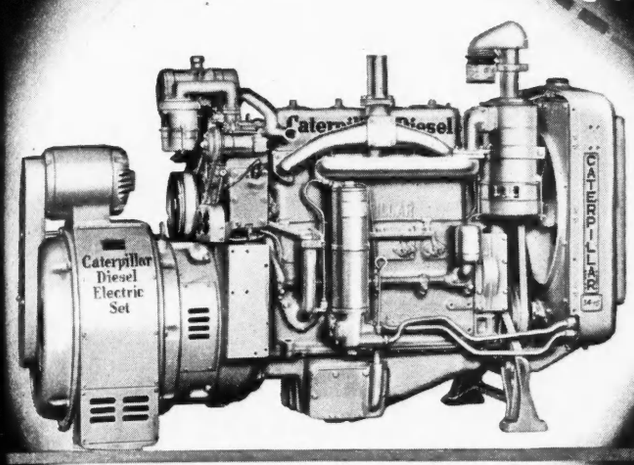

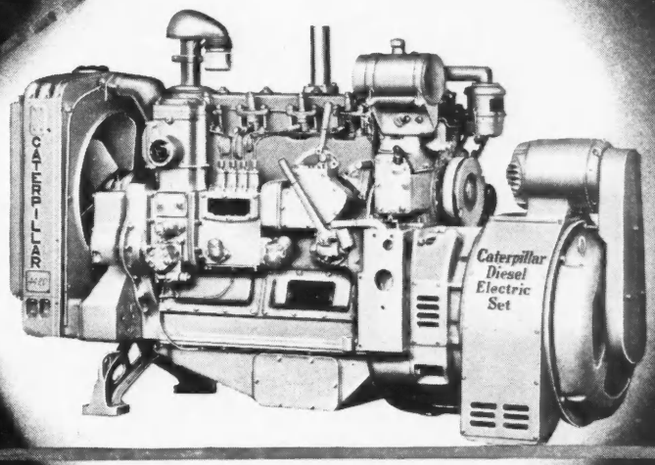

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million dollars has been wasted by the drilling of wells to an average density of one well to five acres. Think of the savings in development costs and operating expense that could have been saved by a 20-acre pattern, with four times the allowable production assigned to each well in the field. Since the wells of the future will become even deeper and more costly, this matter of spacing will continue to assume greater significance. Should it become necessary to drill one well to twice as much acreage as the engineers today say is proper, it seems that we must consider doing so, with the thought that later we could come back and drill intermediate wells, if advisable.

Unfortunately there exists today in certain states, a definite legislative invitation for operators to drill additional wells in order to get additional allowable. These temptations must be eliminated. So far as possible, there should be erased from present conservation statutes those provisions which base allowables largely on potential producing capacities of the wells, or on other factors ignoring the amount of oil in place. A revised program of this character would give greater consideration to the factor of acreage and thus discourage or prevent an operator from drilling wells, for instance, on five acres, for he would then receive only one fourth the allowable he would get for one well on 20 acres. New Mexico, with its wide spacing provisions and accompanying low development costs, operating expenses, and increased recoveries, is an illustration of the advantages in this direction. In fact, good legislation has made it possible for New Mexico oil reserves, which are in a relatively inaccessible location, to secure a position in the markets, in competition with improperly developed pools much more favorably located.

Isn't it a foolish procedure to put engineers and research men to work devising schemes for reducing drilling costs by 10 or 15 percent only to nullify this advantage several times over by drilling twice as many wells on a lease than are required to economically produce the oil? Isn't it also rather foolish to keep on drilling additional wells in a field having a more or less fixed pool allowable, whereunder the only consequence of additional drilling can mean that each new completed well takes from each existing producing well enough daily allowable production to give the new well equal standing with the now reduced old ones?

So far, we have talked about conservation, unitization and well spacing without any reference to the difficulties which arise by virtue of the fact that all effective production legislation originates in the separate states, although market demand originates in the nation. Certain states, like certain operators, like to be "hold outs" and thus capitalize on their potential "nuisance value." They like to see only the other states, which supply oil to the same markets, pinch down their daily flow from proven reserves to a very low level, while they encourage their own natural petroleum resources to be recklessly wasted through improper operation and a total disregard for equitably sharing the national demand. The potential producing ability of certain states which practice conservation, if turned loose, could yield so many times more oil than certain "hold out" states, that the latter's small production would be swamped in the shuffle.

Although the federal government already is playing some part in the national petroleum picture through the Interstate Oil Compact, the Connally Act and the Bureau of Mines' monthly estimates of demand, none of these are effective in eliminating racketeering tendencies among the several states. Under such conditions, it would seem obvious that an element of regulation should be placed over the states similar to that which already has been placed over the pools and operators within those states having regulatory legislation. The oil industry, like all other industries, already operates under various elements of federal regulation. The very oil companies and oil states who now frame their own distorted conceptions of how the federal government would use its powers to inject reason into an otherwise chaotic situation, and who then object strenuously to that self-created conception of federal sanction or regulation, are those who are crying the loudest for federal control of petroleum imports. Imports are only another factor in national petroleum supply, the same as is the daily production which flows from our own nation's wells. Only the government can effectively police import supply; who else can police our multiple-state supply? Any state that is attempting to play fair and is efficiently producing the nation's petroleum resources is just as much harmed by lack of federal influence over the flooding of the national market with oil from wasteful states, as it is by the flooding of our domestic market with oil imported from outside the states.

We do not need government operation or management, but we do need a background of regulation that will enable oil producers to do their own operating in an effective and economical manner. The railroads destroyed their opportunity to profitably serve a growing national demand for transportation when they blindly ignored economics and continued to build up unnecessary and duplicating facilities. Unnecessary competition resulted and the wasteful operating demands of an over-built economic structure caused the railroads' difficulties. After the damage had been done, the government had to step in to try to salvage the situation. By so doing, it was blamed by some for the distress in which the railroads found themselves. However, relentless over-expansion of rail facilities has not continued since government regulation was injected into the situation. This very illustration is used by some as an argument against any form of federal cooperation with the oil industry in an effort to stop unjustified waste. If there is any other agency that can render equity to the national situation, where is it? Although the present need is only for adequate government regulation, it is conceivable that, if this regulation is too late in forthcoming, not mere regulation, but entire government control and management will result.

In my remarks, I have tried to point out the situation as it appears to me and to express as clearly as possible my own conviction that too many in the petroleum industry are not thinking or acting in a manner which is entirely consistent with the facts obtainable by correct economic analysis. This does not mean that the oil business is already in a position any worse than other industries, or that it definitely is headed for a collapse in the course of a few years. It is my conviction that the logic of "the new conception of oil production," as exemplified by unitization and wider well spacing and similar advanced ideas, soon will be universally recognized and applied so that an otherwise inevitable disaster will be avoided. But action is the only thing that ever accomplished a job, and it is needed in this case as soon as possible.

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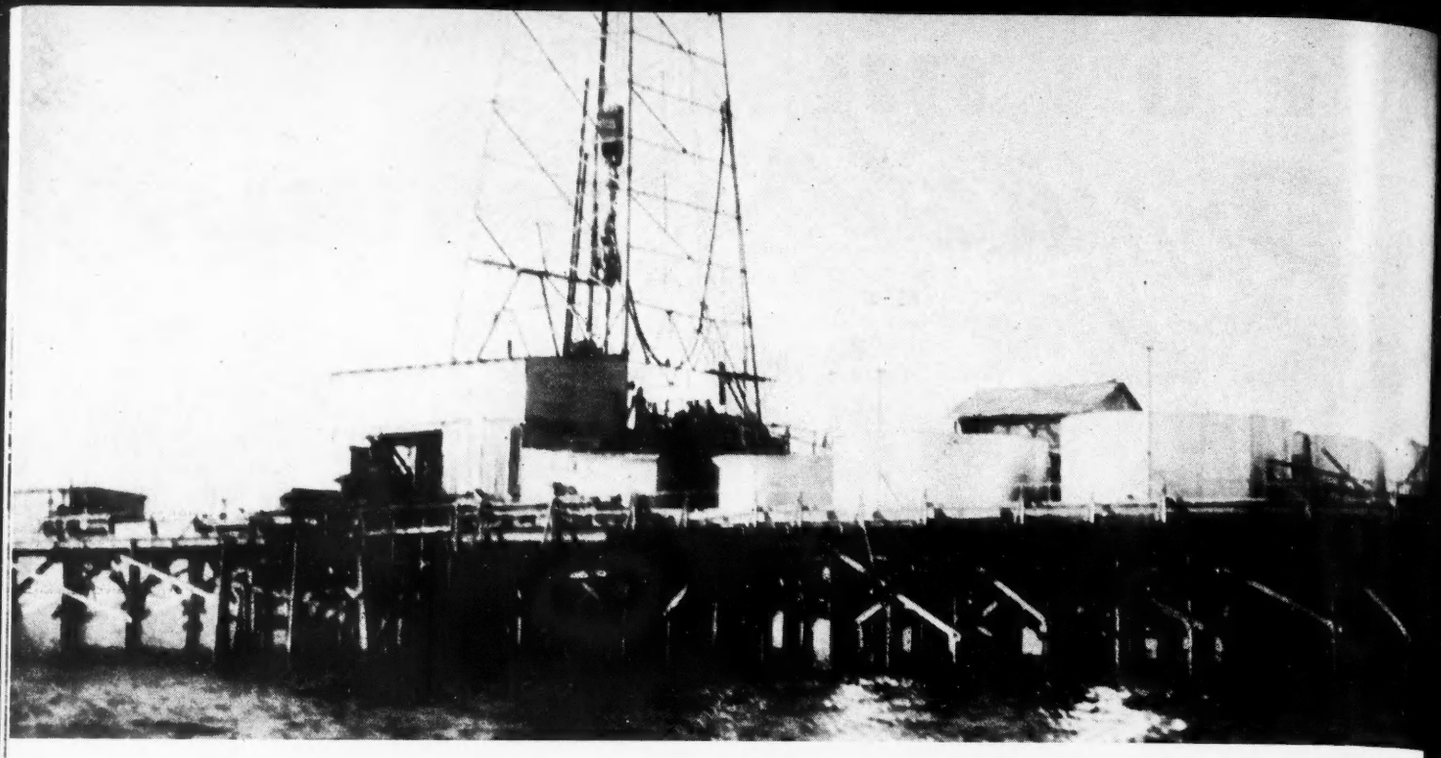
Top: **Laying 8-inch pipe near Patoka, Ill., with an International T-40 TracTracTor, equipped with boom, owned by H. C. Price, Effingham, Ill.** ***Above:*** **An International wheel-type tractor, with pump mounted on it, used by the Western Pipe Line Co., St. Elmo, Ill. It is an efficient, portable outfit for gathering-pump service.** ***Below:*** **70 complete sets of slush pits had been dug by this International T-40 TracTracTor in the Illinois field by Helmerich & Payne, Inc., Tulsa contractors, when this picture was taken. Two of several International PA-100 Power Units used by this company in the Illinois field are shown in the background.**

NTERNATIONAL Industrial Power



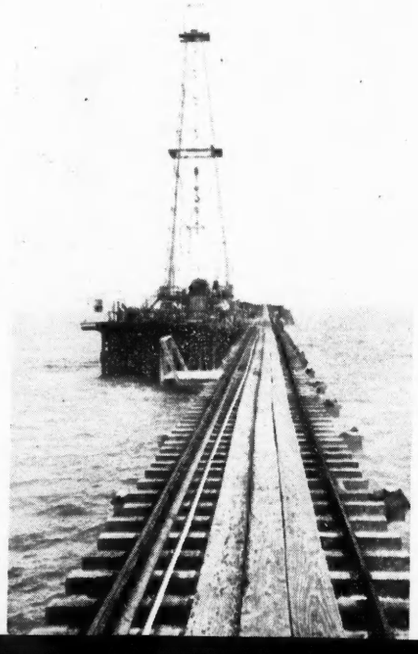
Relation of Preserved Wood To Deep Marine Operations

By R. S. MANLEY, President
Texas Creosoting Company

As man conducted an ever-widening search for new sources of oil supply, many promising drilling sites were found to lie in salt marshes, inland lakes and streams, and even in open ocean waters.

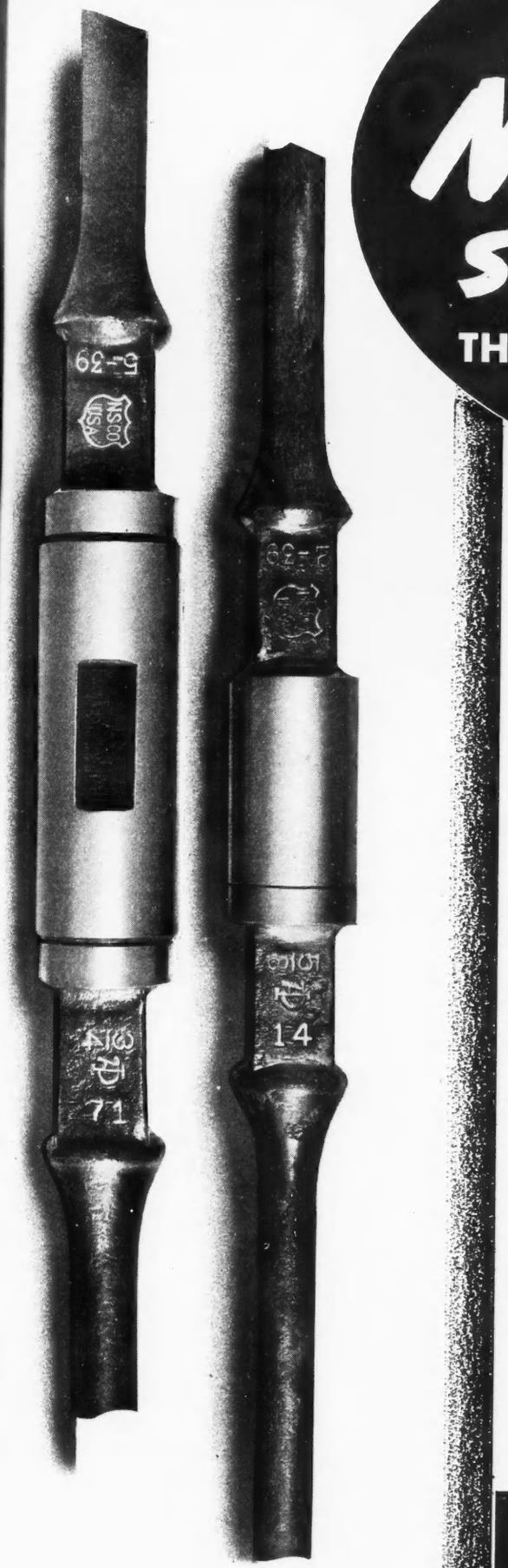
Due to the location in low and soft soil, sometimes in marshes with practically no "bottom," and the heavy load problems presented in design of structures to handle adequate machinery for deep drilling, a new type of derrick foundation had to be devised. First, timber piles and timbers without any protection against decay and wood destroying insects were driven as foundations. It was soon discovered, however, that these untreated members were attacked and completely destroyed by several types of sea worms, as well as decay, and that something would be necessary to render construction materials more lasting. Such an occurrence was a trestle out to a "water location" in the Gulf of Mexico. As the well in question was a wildcat, expenses were kept down by using only "temporary" material and no thought was given to sea worm attack. Before use of the structure was completed, the company drilling the well was shocked to learn that the derrick foundation and the trestle leading out to the derrick had been so completely riddled by the teredo worm (the structure had been in service only 73 days) that quick work was necessary to save many thousands of dollars in drilling equipment and machinery which would soon collapse into the Gulf. Other users attempted to get longer life from their wooden structures by specifying only the finest type of all heart pine timbers, but analysis of their costs proved them too expensive.

At top is drilling and equipment platform in the Gulf of Mexico off the Louisiana Coast. This platform is designed for drilling nine wells. Below is a treated timber trestle to an off-shore location.



In the meantime research and study indicated that properly creosoted pine offered a material which was economical in cost, applicable to the various types of qualities demanded, and of great strength that would be preserved throughout the life of the structure.

Thus the use of properly treated



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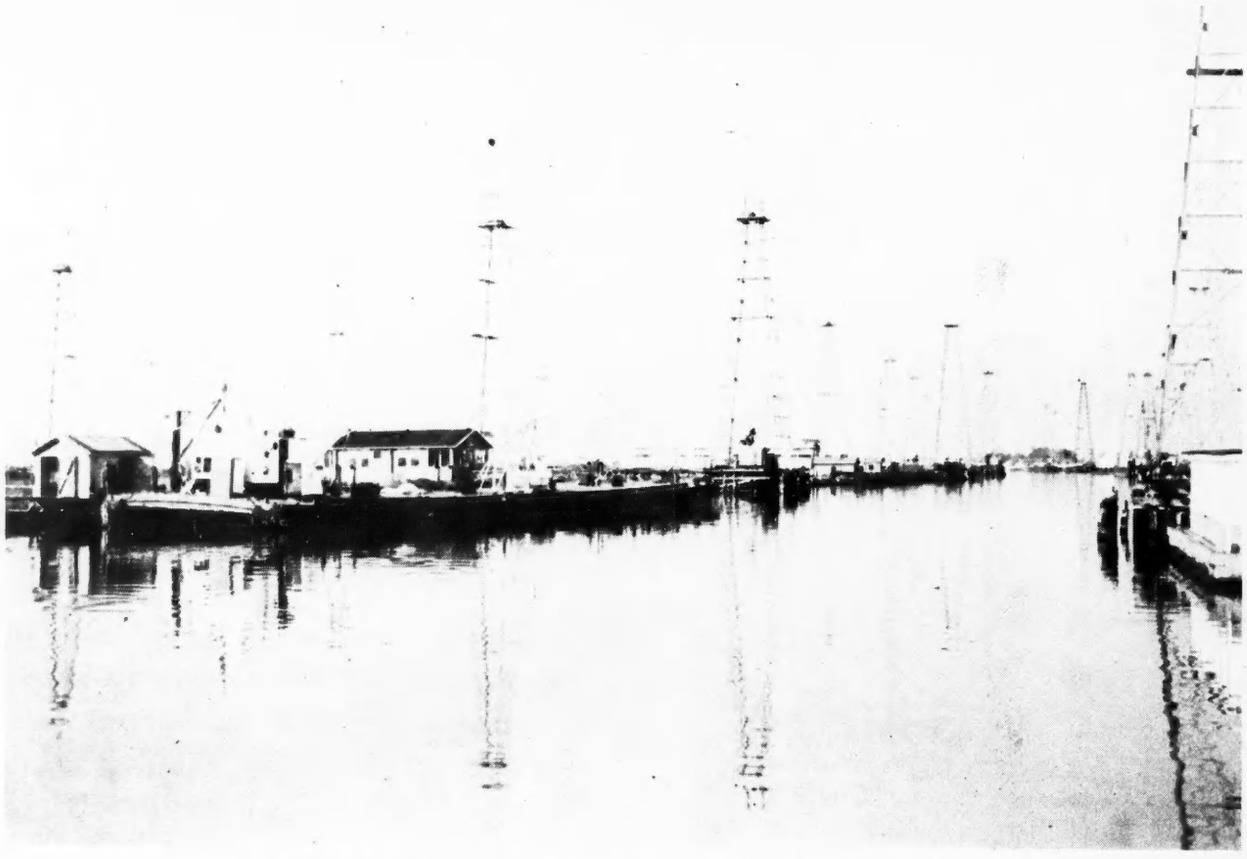

Typical scene in coastal Louisiana showing locations in marshy territory.

timber, usually of Southern Yellow Pine, was adopted for foundations and other structures common in the oil industry. This is true not only in salt water locations but also in inland locations where timber might be subjected to any form of attack of decay, or termites; and the additional cost of processing the timber has brought a distinct saving, even on wildcat rigs as the treated timbers in many cases is salvaged and used in other locations.

The term "Treated Timber" is used in its general sense because in designing a structure, the type of treatment to be given the timber varies with the location. Except in marine locations subjected to salt water marine borers, the most common type of treatment is that of the "Empty Cell" Process. Material treated by the empty cell method is given first an injection of approximately 2½ times the amount of creosote to be finally retained. This is after the wood has been conditioned properly and is administered under certain conditions which must be exactly correct to secure maximum benefit. After injection of the gross amount of creosote, vacuum is applied by which the excess is withdrawn down to the volume desired left in the wood. So that the wood will be prepared to withstand the severe attack of wood destroying agents present in salt water, timber is given what is called the "Full Cell" Process. There the wood is given usually the maximum treatment it will stand without injury, and the cells are left filled with preservative. The preservative is highly toxic to wood destroyers and when distributed throughout the sapwood area,

This carefully designed and well preserved timber platform will serve as foundation for a gathering tank for many years.

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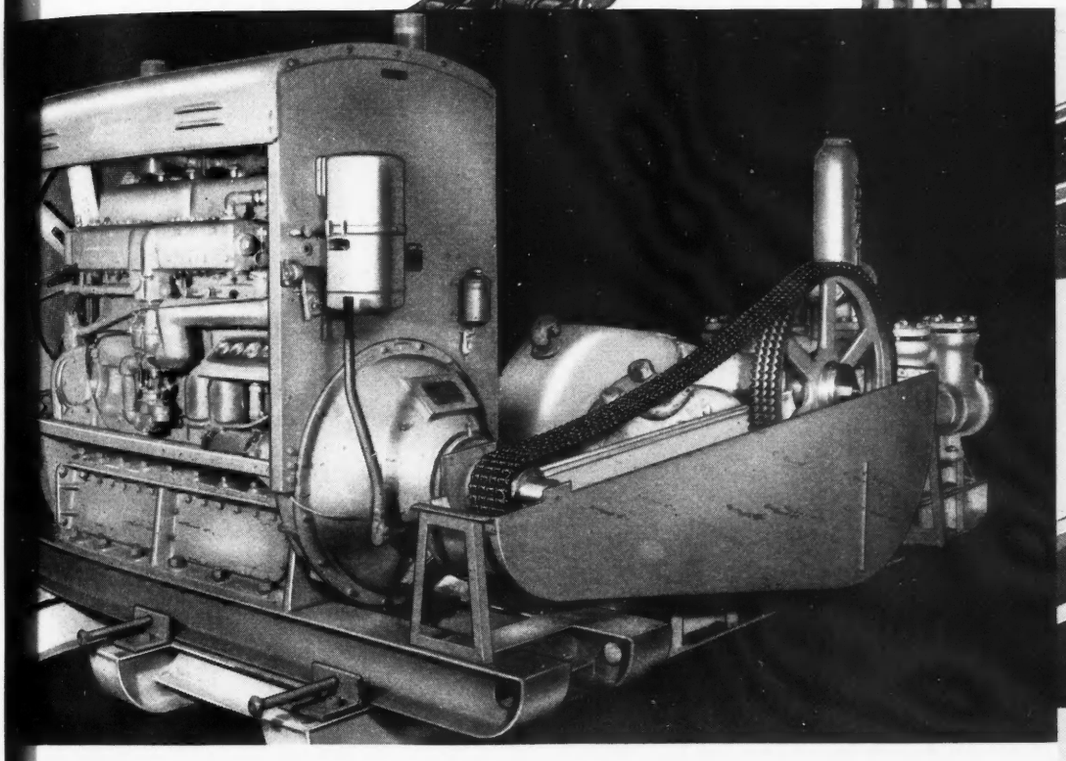

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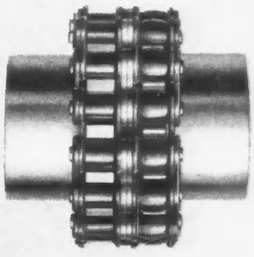

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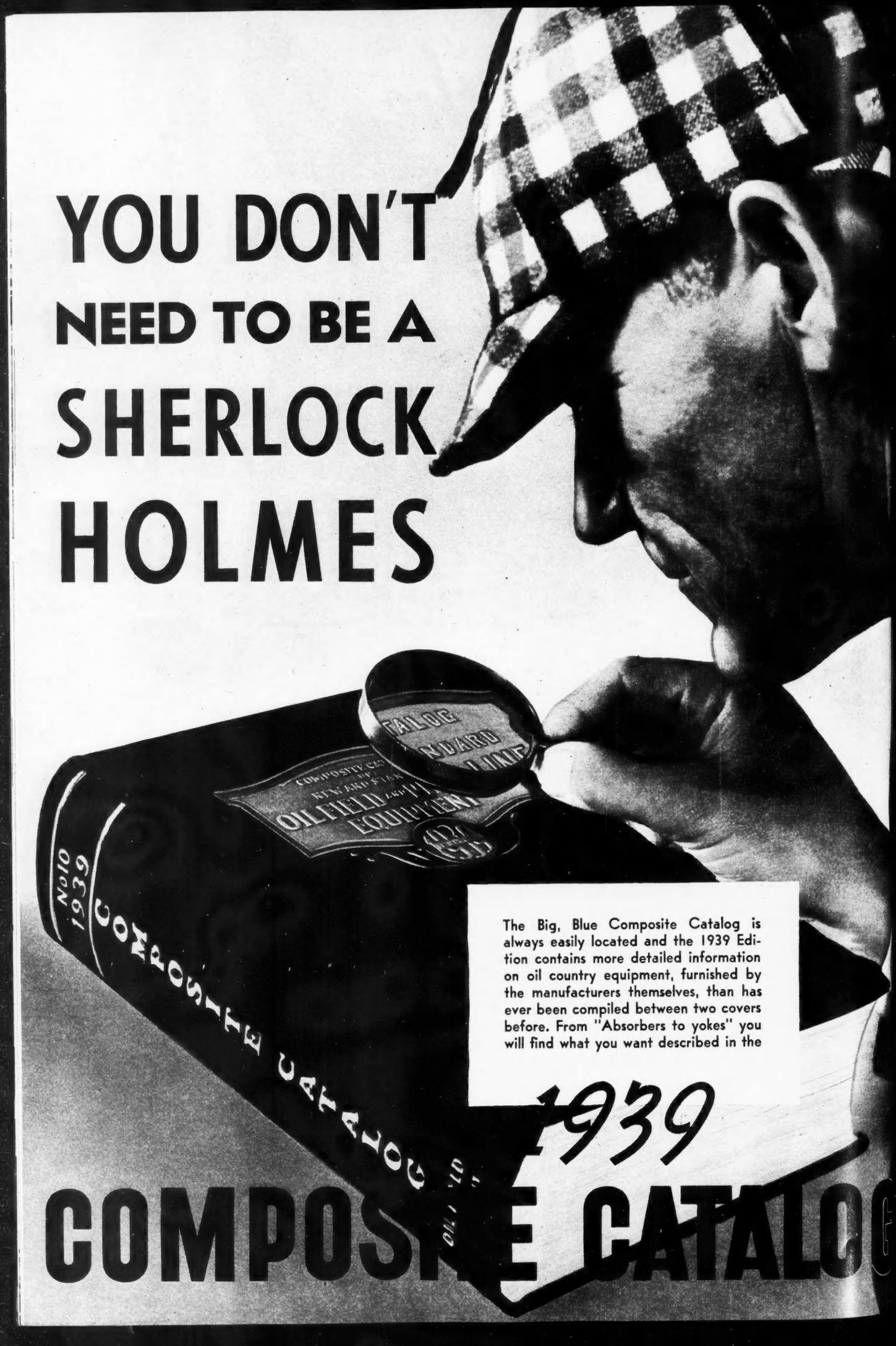
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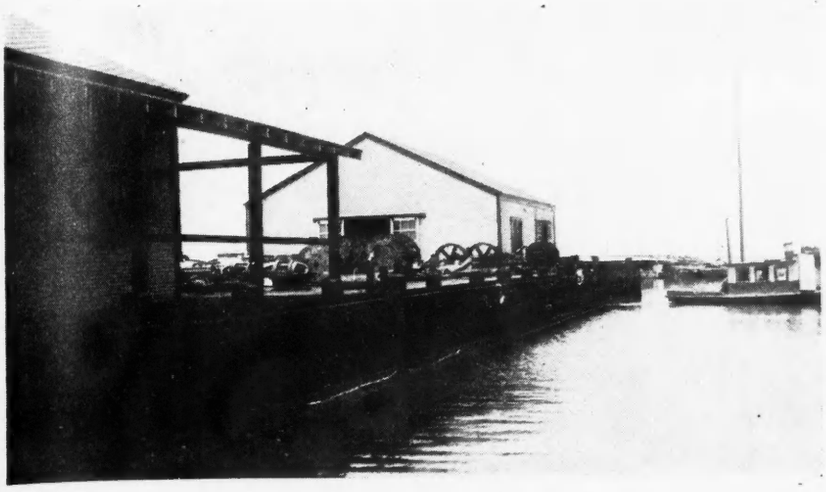

From this treated timber dock, equipment and supplies will be transported by water to location.

forms a thick protective coat of armor around the heartwood. Experience records indicate that service life of from 30 to 50 years may be expected of creosoted timber, dependent upon location.

Final retention, or the volumetric measure of treatment, to the average layman is often confusing. Square timbers, such as caps or stringers used in sub-structures, treated with final retention of 12 pounds of creosote per cubic foot, for example, contain almost 1½ gallons of free creosote per cubic foot of wood—weight of creosote averages approximately 8.75 pounds per gallon.

In locations off the coast in salt water the usual practice is to have the timbers impregnated with at least 20 pounds of creosote per cubic foot if they are to be immersed, and 12 pounds per cubic foot if not actually submerged. For fresh water locations in marshes or lakes where the water becomes only slightly "brackish" part of the time, a treatment with final retention of 16 pounds per cubic foot of wood for submerged and 12 pounds if not submerged is considered to furnish ample protection.

Design of structures, of course, present problems requiring consideration of soil, wind and wave action, dead and live loading, possible future changes in any of these to be provided for, and the necessary factor of safety, solution to which can be determined by combining engineering computation with the various reference manuals, added to that advice and guidance from prudent manufacturers of preserved wood, the user may be assured that his investment will be well guarded.

That tapered creosoted pine piles are ideally qualified to act as foundation piles for heavily loaded structures may be concluded from the following tests:

(a) The Whangpoo Conservancy Board, Shanghai, China, made tests and studies which proved that a tapered pile provides 75% more skin friction per unit of surface area than a uniform sized pile of whatever material.

(b) Pile loading tests conducted by the U. S. Engineers at Bonnet Carre' Spillway, near New Orleans, determined that tapered wood piles 16 inches in diameter at the butt driven to a penetration of 78 feet developed an ultimate capacity of 110 tons. Twelve inch Steel H Sections driven to the same depth developed an ultimate capacity of 73 tons and 10 inch box sections driven to the same depth developed an ultimate capacity of 58 tons (See Vol. 2, Proceedings of the International Conference of Soil Mechanics and Foundation Engineering, 1936, Page No. 231).

Disastrous effect of Teredo attack on unprotected timber piles—Lake Maracaibo.

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MEN who buy or use valves are obviously familiar with them. From experience, they are in a position to know the value of quality in valve design and construction—even in the finest degrees. They know, too, and better than does the front office, how small losses caused by inefficient valves may seem negligible—yet can easily mount up to an important figure that shows in the profit and loss statement.

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As We See It . . .

CONGRESS NOT UNFRIENDLY

CONGRESS adjourned without passing new special legislation affecting the oil business. Perhaps this is indication that the mass mind of the body at last has realized that oil is not different from other basic industry, and laws regulating general business will suffice. The late session included a number of investigations which gave opportunity for both Congress and the public to learn more about the industry as such, and to dispel some of the ideas that persist from pioneer days that it is a "game" or a "racket" in which general rules of commerce are not observed.

While last-minute action of introducing a bill proposing federal control of the industry seems contradictory to the above, it is to be noted that this legislation is not the idea of Congress. It is the proposal of outside influences, just as is most of the proposed legislation that dies before birth.

CONGRESS had offered no less than fifty bills and resolutions aimed at the oil industry, and gave serious consideration to only eight. Each had genesis with either a wind-mill battler or some selfish group within the industry. But in each instance, sober consideration of facts indicated to fair minds that the present set-up and conduct of the oil business is providing the mass of the people with adequate supplies of oil products at reasonable prices.

TWO of the propositions which took most of the time devoted to oil investigations were sponsored by groups within the industry for their personal advantage as opposed to that of the industry as a whole or of the public welfare. These were the proposals to federalize off-shore lands and to divorce the marketing branch of the industry. In the former case it was intimated that certain interests had plans of securing off-shore lands in California through federal permits; injection of the navy claim was an unexpected cumulation. Then the divorce proposal was continuation of the industry's internal strife. This hearing brought testimony from the interests under attack to the effect that their own books show better the profits and losses of their marketing operations than can be guessed at by across-the-street calculations.

BUT the industry is not out of the legislative forest.

Soon to come is the trust investigation. In this the larger units again will be called upon to prove that being big is not criminal. No doubt they also will seek to show that being big makes them more circumspect, just as a fat man needs to be peaceful because he cannot run and it is hard for him to hide.

At least the Congress is in no position to be critical of mere bigness. As the trustee of a forty billion dollar debt and the managing director of a large and diversified payroll, it is big business itself.

BOTH the trust hearings and the Cole investigation under the proposed federal control law promise to be thorough, with little opportunity for the wind-mill battlers and alarmists to be heard. This promise is to be inferred from the fact that Representative Cole will be going over ground with which he is familiar, and Senator O'Mahoney's trust committee has called as its initial witnesses a group whose connections insure information on all angles, and whose integrity will not be questioned either within or without the industry.—J.K.R.

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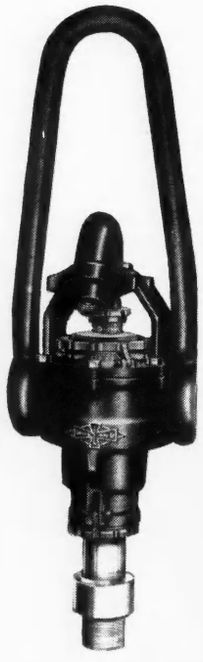

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Load Rating of Swivel at 100 R.P.M.	350,000 lbs.	250,000 lbs.
Net Weight	2,850 lbs.	1,325 lbs.

Write for Bulletin No. 158

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Chattanooga, Tenn.

Surface Cracks in Sucker Rod Couplings—Researching for the Cause

By D. R. DALE
Chief Engineer, The S. M. Jones Company

USUALLY the story of interesting research is told after the work has been completed. Seldom is the reader invited behind the scenes in a manufacturer's laboratories, while the problem is being solved. This article discusses one new phase of surface cracks and brings the story up to the discovery of the cause. What is to be done about it as yet remains unsolved.

IF you are concerned with pumping, you have probably had your attention called, sometimes frequently, to broken or cracked sucker-rod couplings.

What started the crack? And what can be done about it?—are natural questions which are asked frequently but seldom answered outside of the laboratory.

In a recent study of cracked couplings, a new problem was disclosed, which will be of special interest because its causes have never been discussed before. Also, this discussion will exemplify modern sucker-rod research methods and illustrate to some extent how improvements in sucker rods and couplings are developed through the coordination of field engineering and laboratory research.

The first step in solving troubles of this kind is the discovery of the cause. An intelligent study and analysis of the data collected usually leads to an accurate solution.

A study of "ring-worm corrosion" led to the practice of full normalizing sucker rods. A study of corrosion pits and damaged pumps led to surfacing of sucker rods. A study of forging breaks led to the introduction of streamline forgings. Thus a study of surface cracks in couplings will lead to still further improvements.

This article is based on the metallurgical examination of hundreds of failed couplings and box ends which originated with a surface crack. On the basis of these studies and a knowledge of fabricating operations and surface conditions, these failures can be attributed to one or more of these four origins:

1. Cracks that result from hammering or mishandling in the field.
2. Cracks that result from faulty grinding during fabrication.
3. Surface fatigue cracks which are by far the most common but previously have not been clearly understood.
4. Fatigue due to insufficient cross sectional strength.

Sucker rod box ends and couplings are subject to fatigue failure, and, while the origin of the failures have been traced to the presence of numerous cracks, these cracks are generally of four widely different patterns. It has not been difficult to discover the cause of at least three of the types. However, the origin of the fourth type has been a debatable subject for some time past, and has been attributed by various authorities to grinding operations, bad handling or misuse, thermal stresses due to temperature gradients, and other causes.

FIGURE 1

A description and discussion of the causes of each of these types in order will aid materially in understanding the problems involved with coupling fatigue failures.

Hammer Cracks

Cracks of this type are easily recognized by the indentations which are almost invariably oval shaped. They are caused by the practice of some rod-handling crews in hammering the couplings with a sucker rod wrench or other tool in order to break a joint. (See Figure 1.)

A recent observation of a rod crew going from well to well and always hammering the couplings brought up the question as to the damage of the couplings and the need for better instructions.

The farm boss agreed that it was bad practice but explained it by saying that a former roustabout was so much stronger than any of the present crew that hammering seemed to be the only way to break out the joints.

Hard materials, especially case-

hardened couplings, are particularly vulnerable to this treatment. Even the box end of box-and-pin sucker rods are susceptible to hammering as indicated by the illustration, Figure 2.

Note how, in each of these cases, when the two broken ends are put together, the pattern of the hammer blow is complete. Should this indentation appear on only one side of the failure, it would be due to hammering after the rod had broken.

In practically every fatigue failure, the origin and final break can be easily observed and identified. Figure 3 illustrates the end view of such a failure. It will be noted that the failure originated on the outside and progressed inwardly, as shown by the smooth silky appearance, and with no deformation.

As the cross section was progressively reduced, a point was soon reached wherein the remaining unbroken metal was insufficient to carry the load, and the final failure was of the tensile type, with resulting deformation, and is shown by the coarse crystalline portion. Figure 4 illustrates a typical fatigue failure, and Figure 5 illustrates a typical tensile failure. Note the similar deformation of metal in each example.

In order to reveal almost all types of surface cracks, hot acid etching is necessary.

Grinding Cracks

Occasionally grinding cracks are found to be the cause of coupling failures. Naturally they only occur where one or more grinding operations are improperly performed and are usually confined to hard-

FIGURE 2

ened or case-hardened materials.

This type of crack is generally recognized by its appearance, which resembles the pattern of "alligator leather." The actual pattern varies with the different materials, the hardness and the localized heat generated by the grind-

FIGURE 3

ing operation. Faulty or incorrect heat treatment very often is contributory to grinding cracks.

In general, grinding cracks are the result of improper fabricating practice which results from dull or glazed grinding wheels, the wrong grit or grade of grinding wheel, lack of suitable coolant and attempting to grind too deep in one operation.

In order to illustrate grinding cracks, a warped coupling was used which offered high and low spots to the grinding wheel. The high area forced the grinding wheel to cut too deeply with the resulting cracks illustrated in Figure 6. An excessive cut was taken at one end of the coupling which resulted in the grinding cracks shown in Figure 7.

Surface-Fatigue Cracks

The surface-fatigue crack is by far the most common type found in failed couplings and in the box end of sucker-rod forgings. It has often been mistaken for grinding cracks but can easily be distinguished, after hot etching, because the surface-fatigue cracks are in parallel rows not "alligator patterns," they are invariably transverse to the longitudinal axis and they always appear on the worn part of the coupling or box ends.

Sucker rod couplings and box ends are subject to a reciprocating motion during the pumping stroke, during which they are repeatedly slapped against the tubing. At times this force is of considerable magnitude.

After thousands of these blows against the tubing, the surface becomes fatigued and the surface cracks appear and this condition is shown in Figures 8, 9, 10 and 11. Note they are always at right angles to the direction of the impact force producing them and are always confined to the area of contact. Also note that they do not occur on the unworn portion.

Surface-fatigue cracks are not confined to the oil country. For example, the inner roller cup of a locomotive axle roller bearing which is known to be submitted to similar repeated impacts was hot etched, and surface cracks revealed as shown in Figure 12.

While this bearing was not over-

FIGURE 4

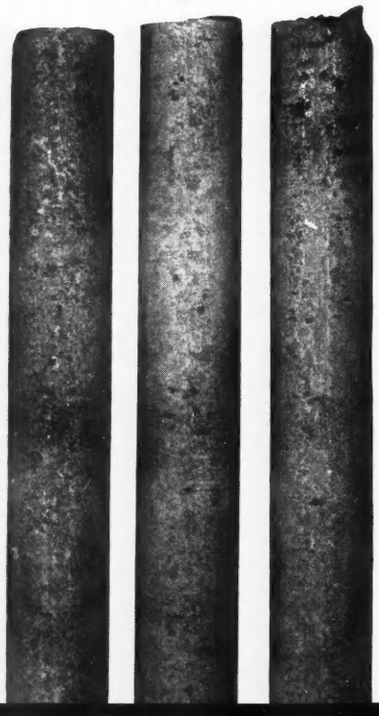

FIGURE 5

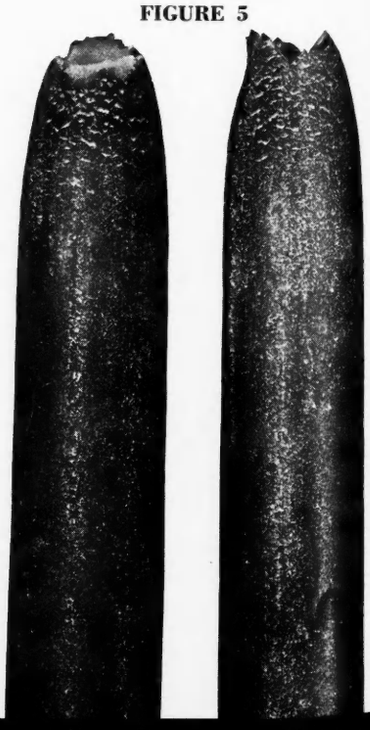

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FIGURE 6

FIGURE 8
(Below)

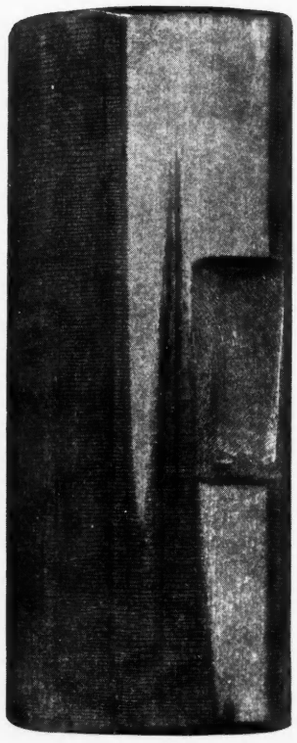


FIGURE 9

stressed and consequently did not fail, nevertheless, the cracks at right angles to the direction of the motion of the wheel are the result of thousands of impacts due to a flat spot on the wheel.

Methods of Correction

The elimination of cracks caused by hammering or mishandling can be accomplished by the proper education of field crews.

Grinding cracks are due to faulty manufacture and can be eliminated by proper manufacturing practices, carefully controlled at every step.

Surface-fatigue cracks are not easily eliminated and offer a tough metallurgical problem for solution. Any method that will eliminate the impact will at the same time eliminate the cracks. Reduction of unit contact pressure by enlarging the area or diameter of the coupling will aid slightly. Hardness or softness of material has little effect or bearing on the problem.

Fatigue-Cracks Due to Insufficient Cross-Sectional Strength

It has, of course, been known for sometime that the greater frequency of sucker-rod coupling breaks in the larger sizes of rods is due to the decreasing section ratio and therefore strength allowed by the current coupling specifications. The graph, Figure 13, brings out the lesser strengths available in the larger sized couplings as made to current specifications. The lower curve shows that the ratio of the cross sectional area of the pin to the cross sectional area of the body of the rod is practically constant for all sizes of rods. Whereas the upper curve shows that the ratio of the cross section area of the couplings to the cross sectional area of the body of the rod is not constant, and for the larger sizes of couplings shows a definite lack of cross sectional strength.

It is well known that coupling failures in the 5/8-inch size are very rare. A few failures are experienced in the 3/4-inch size, and by far the greatest number of failures are experienced in the 7/8- and 1-inch sizes.

All of these failures are of the typical fatigue type, originating in a large number of examples examined at the root of the thread. Figure 14 shows a coupling with this type of crack. In this illustration of a sub type coupling, which happens to be tapped for 1-inch sucker rod thread in one end and 7/8-inch in the other, it is pertinent to note that the failure started in the 1-inch section which has the least cross-sectional strength and therefore the highest working stress.

Fatigue failures are always due to working stresses beyond the endurance limit of the material. These working stresses are sometimes magnified by the effects of stress concentration factors such as pits and notches, sometimes called "stress raisers."

In the case of couplings, the root

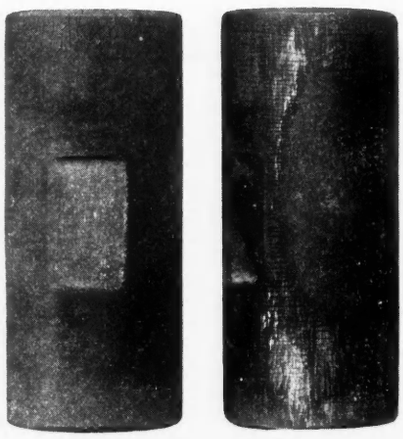


FIGURE 7

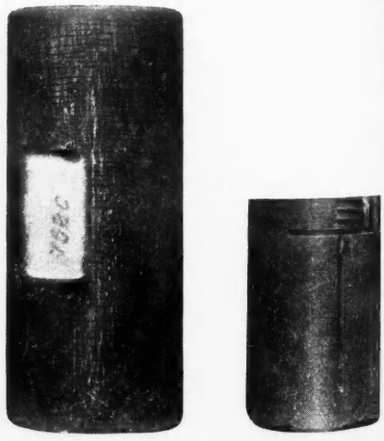
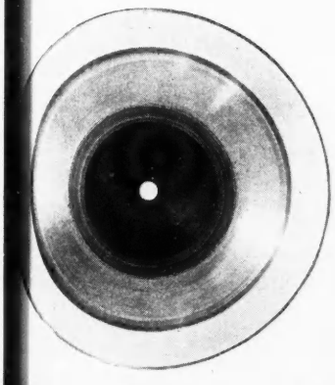


FIGURE 10

7 ANSWERS

1. Has experience proved which steels are most economical and suitable for Drill Collars and Kellys?
2. Is heat treatment of the *entire* product really of vital importance?
3. Does precision alignment of the joints add to the life of Drill Collars and Kellys?
4. Is it possible to bore a *straight* hole through a Drill Collar or Kelly 40 feet or more in length?
5. Does it pay to insist upon "concentricity of bore"?
6. Is it necessary to give a third heat treatment to the joint ends of a Drill Collar or Kelly?
7. Can Drill Collars and Kellys that possess all the desirable features mentioned above be purchased at reasonable prices?



you are looking through a 40- Baash-Ross Drill Collar. Here is ncentricity of bore" that pays div- nds when table speeds are high.

ALL YES!

1 YES —Several major oil companies have proved by drilling many thousands of feet that S.A.E. X3140 Nickel Chromium Steel or S.A.E. 4140 Chrome Molybdenum Steel, are the most suitable materials.

2 YES —Heat treatment *over the entire length* in one operation is needed to remove strains produced during forging and straightening operations, and to produce and increase uniform physical properties. A second heat treatment over the entire length is recommended, after turning and boring, to remove any residual strains, and further to improve physical properties.

3 YES —If the ultimate in economical and trouble-free service is desired, the maximum misalignment between the axis of the threaded joints at each end should not exceed 1/2" in 40 feet, checked by surveying from joint to joint.

4 YES —You can secure either Drill Collars or Kellys 40 feet or more in length having a tolerance in bore diameter of plus 1/32"—minus 0" with a variance in wall thickness less than 1/4"—and yet so straight that a test bar 10 feet long and not less than 1/8" smaller than the specified bore will pass through freely and without binding.

5 YES —And this is particularly true since the speed of rotation of the drilling string has been greatly increased. It is readily understood that if the "concentricity of bore" is not held to extremely close tolerances, the Drill Collars will be definitely out of balance. The hazards of the resultant "whip" when high rotation speeds are employed, need not be explained to any experienced operator.

6 YES —In addition to twice heat treating over the entire length, the ends should be heat treated a distance of several feet to secure a hardness of 277-302 on a Brinell Hardness Testing Machine. The maximum toughness thus developed is a vital part in the manufacture of successful, modern Drill Collars and Kellys.

7 YES —Practically every feature is present in *all* Baash-Ross Drill Collars and Kellys which sell at the same prices as ordinary products. The nominal extra charge made for the second entire heat treatment is completely absorbed by the greatly increased life in service . . . Ask the office nearest you to present the full story of Baash-Ross TRUBORE Drill Collars and Kellys . . . They can help cut your drilling costs. YES, that's a promise.

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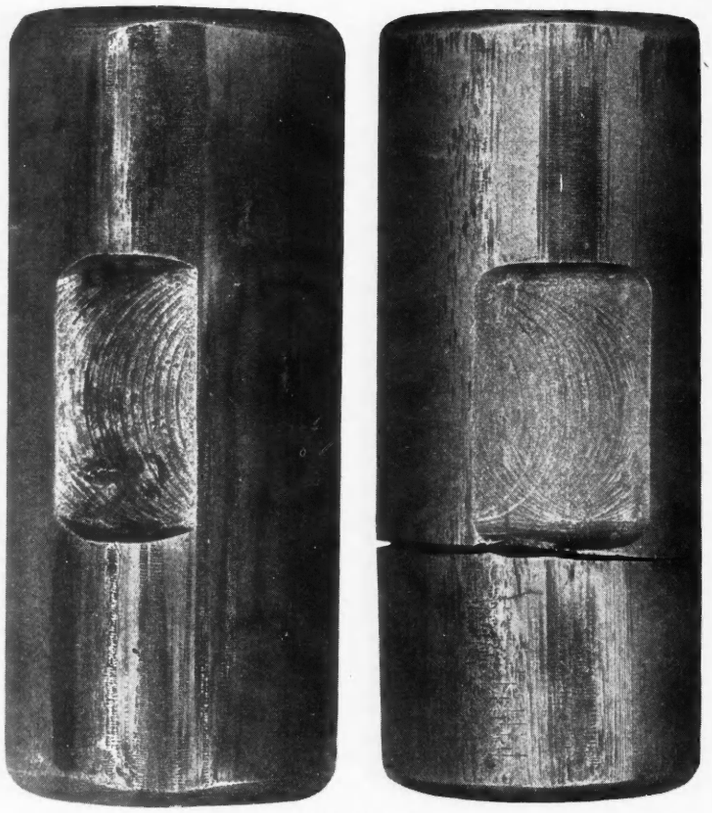

FIGURE 11

FIGURE 12

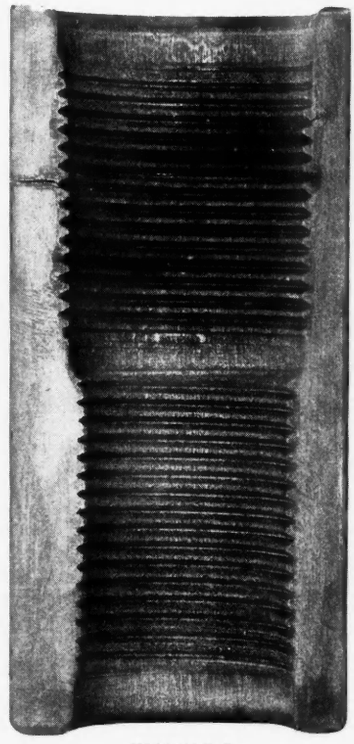

FIGURE 14

of the threads is a serious stress raiser because of the thread notch effect.

In Figure 14 it is also pertinent to note that one of the cracks has progressed across the entire cross section, while another crack originating at the root of the thread has progressed about 1/16-inch. This latter crack is definite proof that this fatigue failure originated from the inside of the coupling and not the outside.

Failures of this type can be eliminated or greatly reduced by (1) increasing the cross sectional area of the coupling, (2) using a material of greater endurance strength.

The first method is the most practical from a manufacturing viewpoint, as the material now most generally used for case-hardened couplings has given very satisfactory service when not overstressed.

The second method offers greater manufacturing difficulties, and at the same time is more sensitive to notch effects, which effect may offset the greater endurance strength obtained.

The roots of most sucker-rod coupling threads are well rounded, and any reduction of the notch effect at this point is doubtful.

If sucker-rod couplings could be so proportioned as to give a constant ratio of cross sectional area to body area of rod as obtained by the pin, failures would be greatly eliminated.

From a practical viewpoint, ¾-inch couplings of 1¾-inch O.D., and ⅞-inch couplings of 2-inch O.D. will meet this desirable condition, and couplings of these sizes have already been tested with improved results. It is obvious that for the 1-inch rods the larger standard size should be used when possible.

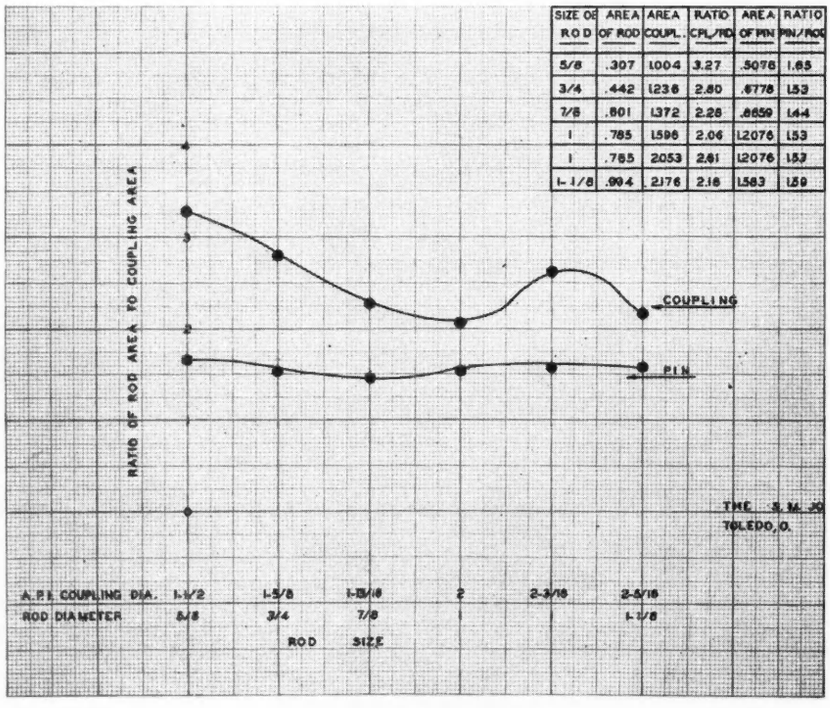

FIGURE 13

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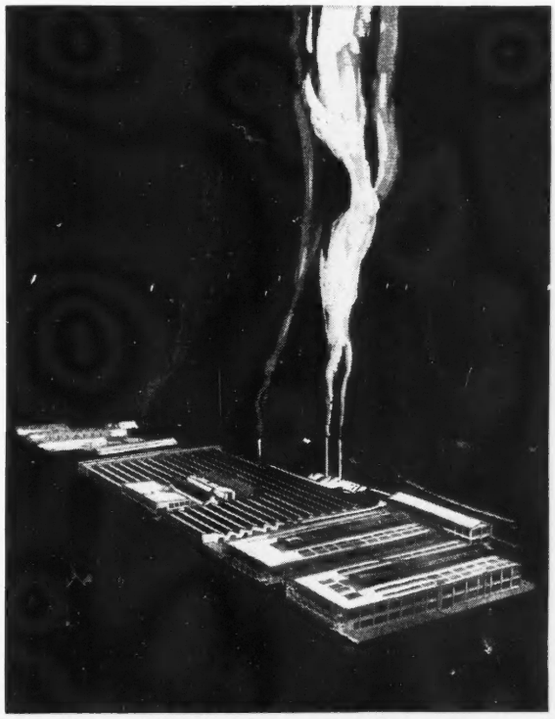

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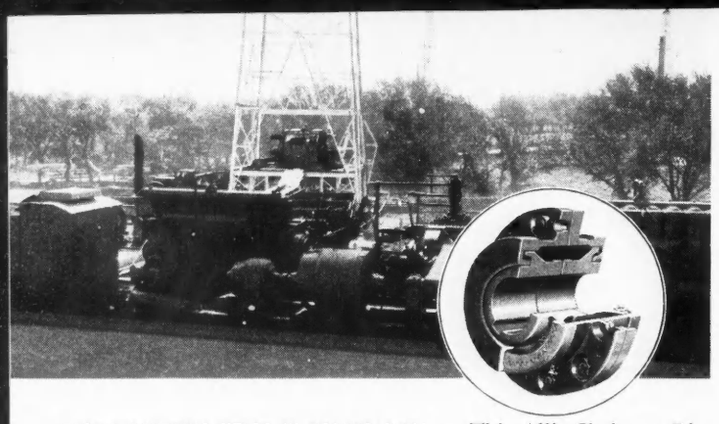
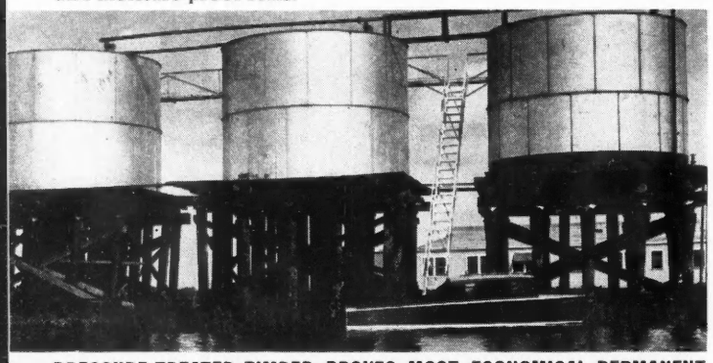


FAST'S COUPLING HELPS IN RECORD DRILL . . . This Allis Chalmers Rig, powered by a 275 HP Atlas Imperial Diesel and owned by Capt. R. B. Fields, Oklahoma City, drilled a 6,358 foot well in 26 days. Three Fast's Self-aligning Couplings were used on the main drives. The load-carrying surfaces in Koppers Fast's Couplings are protected from wear by a positive film of oil. This oil is kept permanently clean by the rocking bearings which make precise metal-to-metal contact and are in the one position where they form permanent dust- and moisture-proof seals.



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Serious Soviet Competition in World Markets Precluded By Growth in Domestic Industrialism

By L. DAVID WOSK, Consulting Geologist

DID the year 1938 show any advances or progress in the petroleum industry of the Soviet Union?

Do the statistics of production, transportation and refining reflect in their entirety the advance there?

Has the development of the country as a whole progressed to the extent that comparisons between it and areas developed to a high technical degree can be made without creating erroneous impressions, and drawing erroneous conclusions?

Were the important factors of trained personnel, modern techniques, modern equipment, efficiency of operations, etc., improved during 1938?

What new discoveries were made, and what happened in the older areas?

These and many other questions come to mind when one considers progress in the petroleum industry of the Soviet Union.

War Industries Take Toll

Aside from the considerations of the differences between a planned economy (attempted advance on an entire front) and a laissez faire economy, the tense international situation has undoubtedly altered the stress placed upon the petroleum industry with respect to others. A shifting of trained personnel has undoubtedly gone into direct war time industries to a greater extent than previously, thereby affecting the petroleum industry. With these factors merely mentioned to indicate the author's awareness of them, a consideration of the questions raised will be undertaken.

Reserves Are Great

No great petroleum industry can be built without adequate crude reserves. While the reserves of the Soviet Union may not be as great as those claimed for it by Soviet Academician I. M. Gubkin, the author, nevertheless, grants that they are great, and adequate to meet the expanding industrial program of that country for many years to come. This is aside from the needed ability to exploit those reserves. These conclusions have been reached by extensive field travel in the Soviet Union in 1937. A discussion of these factors can be found in a series of articles published by the author in THE OIL WEEKLY commencing February 21, 1938. The present report is an attempt to supplement that series and bring it up to date. The material herein presented was gathered from personal communications, reports of the American Russian Chamber of Commerce, The American Russian Quarterly, Tass Mail Service from Moscow, Monthly Review of the U.S.S.R. Trade Delegation in the United Kingdom, translations from Planovoie Khoziaistvo (organ of the State Planning Board), Neftennoie Khoziaistvo, Industria, Pravda, Izvestia and Azerbaijanskaya Neft, with pictures from Sovfoto.

Geological Research

The total area of pre-war Russia which had received geological consideration was not large in comparison with the tremendous area of the country. Since 1913, the geological department of the Academy of Science has energetically prosecuted the research and mapping of tremendous areas. By the end of 1938, an increase of 350 percent over 1913 was announced. At present, the most modern geological and geophysical methods are being used, including soil gas analysis, magnetometer, torsion balance, seismograph, etc. Completed wells are surveyed and electrically tested. During 1938, there were 370 geological field parties operating. In the petroleum branch, they were widely scattered over the entire area from the Volga River in Europe to Saghalin Island in the Pacific, detailing as well as doing reconnaissance. A great concentration, however, was being made in the Ural-Permian-Volga area and also, in the Emba-Caspian Sea area, where new oil bases are being set up. The most important discovery arising from this intensive geological survey, in the opinion of the author, was that of oil in the Cambrian formation in Siberia. This will be treated later.

Production

Prior to 1914, production methods were very primitive. Wells were baled and not pumped. From 1917-22 (the period of civil strife) many wells were flooded or burned and the equipment allowed to disintegrate. By 1920, production had fallen to 40 percent of the

pre-war level. A shortage of equipment, supplies and skilled labor, accompanied by complete disorganization in all branches, especially transportation, presented an almost insurmountable problem. By 1927, however, pre-war production levels were reached. New, modern equipment was imported. Rotary and cable drilling, pumping, gas and air lift, electrification, and other factors were introduced. Cost of production was cut 50 percent. By 1931, production nearly doubled the 1928 figure, and by 1936, had increased 26 percent over 1931. In 1913, Baku and Grozny accounted for 96 percent of the total output with other fields but 4 percent; by 1936, Baku and Grozny had fallen to 91 percent and the others increased to 9 percent, in spite of the fact that total production had nearly trebled. This indicates the discovery of many new fields and extension of old ones. The Ural regions increased from 2.8 percent to 8 percent from 1933 to 1936. In 1931, new regions produced 2,900,000 tons; in 1936, 15,600,000 tons. The total production for the Soviet Union from 1919 to 1937 inclusive was 298,500,000 tons. The average annual output per worker increased from 387 tons to 1390 tons in the period 1913-36, a marked advance.

Total production during 1937 was 27,867,025 tons equal to 202,858,661 barrels. January to November, 1937, inclusive, production was 185,256,000 barrels, with a daily average of 554,659 barrels. For a similar period of 1938, production was 191,142,000 barrels with a daily average of 572,584 barrels. Footage drilled January to November, 1937—5,724,660 feet. In the same period for 1938, footage drilled was 4,990,000 feet. Thus 1938 production will exceed that of 1937, in spite of a lower drilling program.

In Older Fields

In discussing the older fields, during 1938, production was extended at Artem Island out to sea proving an area of 750 hectares. Four wells came in with an initial production of 4900 barrels daily. Drilling is now proceeding 2.5 kilometers from shore. In the Lok Batan mud volcano, the south side was proven productive (50 hectares added), and wells initialing 3500 barrels daily have linked this field with Puta. In the Ishimbaevo field several new producers were completed and a new horizon opened at 1500 meters. At Izberbash, in Daghestan, production was obtained from a well about 1 kilometer from shore at a depth of 1700 meters, increasing the proven area materially.

Deep Zones Found

In September, 1938, deeper horizons at Krasnokamsk were discovered (1250 meters) yielding 40-50 tons daily from the Carboniferous. The entire area on the Ural flank from Ukhtinski on the north through Krasnokamsk, Ishimbaevo, thence west to the middle Volga area of Syzran, can be considered as potentially productive, not only in the Permian formation but also in the Carboniferous, with lower horizons not ruled out.

At Gorskaya, in the Grozny area, several gushers (up to 3500 barrels) were brought in and the total proven area was increased. In the Baku district, the first 10 months of 1938, 911 wells formerly idle were placed on production, materially increasing the production, though the schedule called for approximately 2100 idle wells to have been reconditioned. Here drilling speeds have been increased to 794 meters per month per six-hour shift, and wells of 6000-foot depths are becoming common. In the Maikop district, new gushers have been discovered at Asphalt Mountain and new areas developed. In the Emba area, new productive zones were discovered at Makat, Kaschagyl and Baychinass. An ambitious drilling program of 1770 new wells was undertaken in 1938, which was not fulfilled.

New Fields

Both in old areas and new areas, fields of considerable importance were developed during 1938. Three new wells were drilled on the Romny prospect in the Ukraine and additional high gravity oil was found. Commercial production has not yet been opened, however. The indications lead to a growing belief that the Ukrainian salt domes (Romny type) will be commercially productive. In the middle Volga area, at Samarskaya Luka, near the village of Stavropol, oil was discovered in the Carboniferous at 990 meters. With only three meters of the formation drilled, the initial production of the discovery well was 250 tons per day. This is further evidence of the importance of the middle Volga area. In the same area, the Yablonovo structure was opened, with a Cretaceous well initialing 1000 barrels. Seven or eight additional structures in this area are to be tested during 1939.

Kama Developments

On the Ural flanks, in the Red Kama area, oil was discovered in 1934 at a depth of 160-190 meters. In 1936, flowing wells (15-20 tons daily) were brought in at a depth of 950 meters. During 1938, at a depth of 1250 meters, wells initialing 40-50 tons daily were completed. North of this district about 75 kilometers, in what is termed the North Kama area, in July, 1938, at depths of 170-900 meters, wells initialing 15-20 tons per day were discovered. The similarity of the formations of the North Kama area and the Red Kama area indicates that production may be found in the North Kama area at greater depths. The structural indications are those of a single structure over 75 kilometers long and 16 kilometers wide. Several wells are being drilled in the connecting territory which, if successful, will prove it to be of tremendous importance. The importance of this huge discovery lies not only in its actual production, but in its resemblance to a whole series of similar structures in the Sverdlovsk region, which may thus be considered as potentially productive.

Touimaza Discovery Large

The Touimaza field discovered in 1937 has proven up an area of 120,000-150,000 acres. Several wells drilled 6-8 kilometers apart came in at 1100-1300 meters in the Carboniferous. An area sufficient for 3000 locations has been proven. The estimated reserves in this field alone are placed at 100,000,000 tons. The oil is high gravity, containing 37 percent light fractions, and is similar to that found at Syzran.

In the Bashkirian region at Ishimbaevo, a new 100-hectare pool was discovered. In the Orenburg province, south of Ishimbaevo, at a depth of 285 meters, high gravity oil was struck early in 1938 at Buguruslan, on a buried salt dome. Six prospective structures between this production and Ishimbaevo are to be tested in 1939.

Kul-Sary Strike

South of Orenburg, in the Emba area, an important new discovery was made in 1938 at the Kul-Sary field

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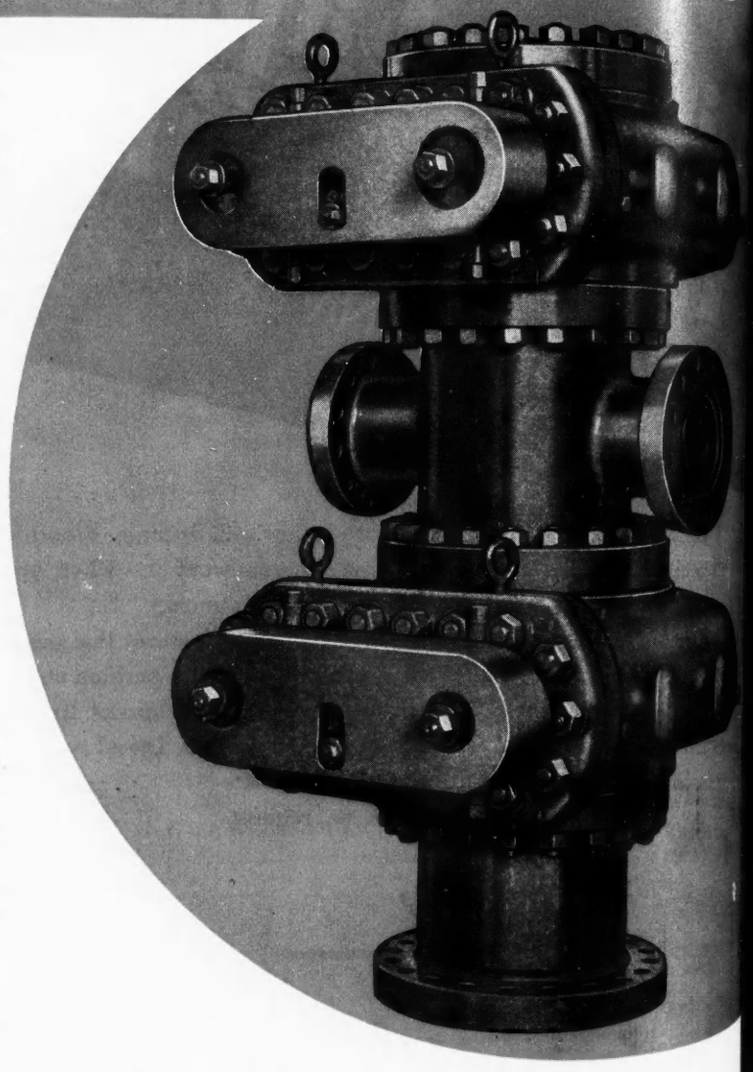
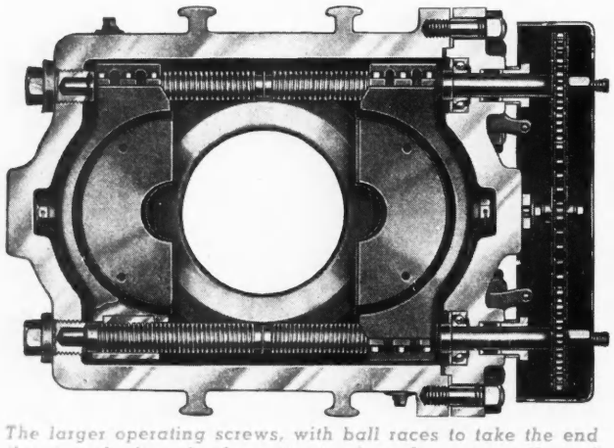


The new Shaffer Type 38 Cellar Control Gates embody recent improvements and refinements in the method of effecting a seal against the highest pressures; in the ease of opening and closing the gates regardless of what the pressure may be; and in the rigidity and strength of the entire assembly. In the hook-up shown above at right, the upper Shaffer Type 38 Cellar Control Gate is equipped with rams for closing around the drill pipe, and the lower gate is equipped with rams for a complete shut-off when the drill pipe and tools are out of the hole.



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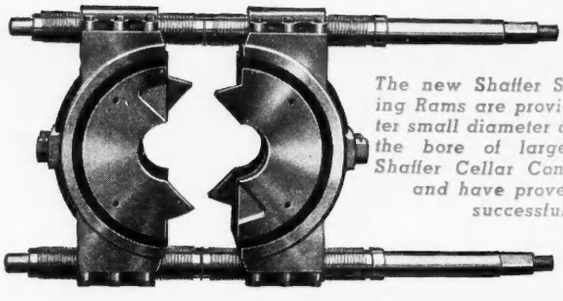

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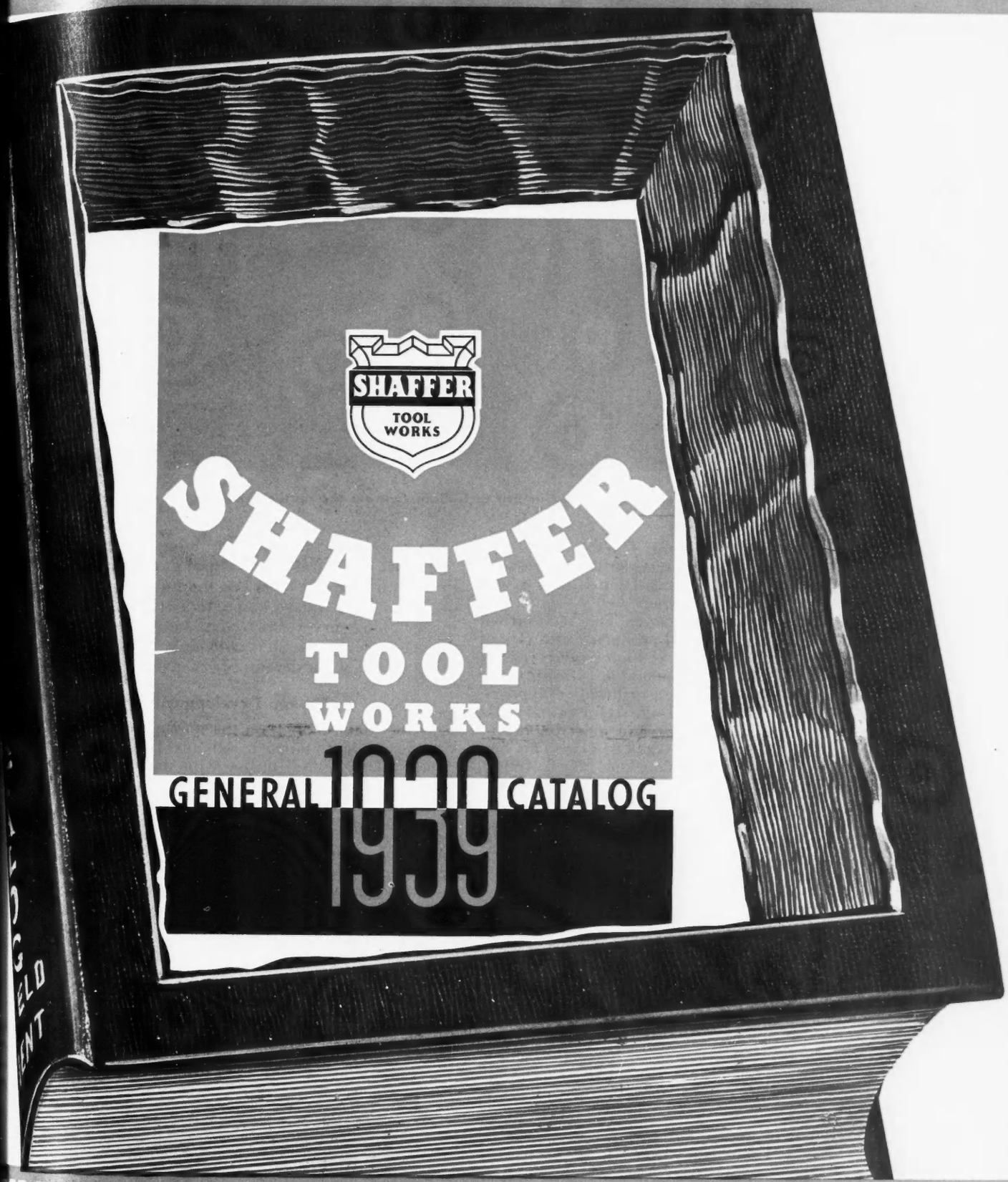

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Camel caravan taking oil well casing from Guryevo to Kalinin field on the northern shore of the Caspian sea.

20 miles east of Kaschagyl field. The dome was first mapped in 1933, and several tests drilled thereon in 1934. In 1938, the first commercial production was discovered at 1003 meters, when well No. 10 came in from the Jurassic as a wet gasser. This soon turned to oil and the well commenced producing at a rate of 350 barrels per day. The oil is high gravity (.784) and is accompanied with considerable pressure. Several additional wells have been drilled and approximately 100 locations proven. Data so far reveals that Kul-Sary is one of the largest and most important of the Emba salt domes discovered to date. This find has stimulated development on the Kazyl-Kuduk, Kazyl-Kala and Girguiss domes in the immediate vicinity.

The Emba area has hundreds of known salt domes, 93 having live oil seeps. Production from this area in thousands of tons is as follows:

Emba Area Production

(Thousands of Tons)

1911	18.0	1932	247.0
1913	117.6	1933	196.4
1914	272.7	1934	241.6
1919	26.6	1935	274.0
21/22	132.8	1936	472.0
25/26	218.7	1937	488.1
1930	342.7	1938	600.0
1931	327.7	1939	750.0

Production for 1937 of Fields of Emba District

(Thousands of Tons)

Dossor	59.8
Makat	112.4
Baychinass	62.6
Iskini	68.3
Kaschagyl	185.0
	488.1

East of Kul-Sary, though lying in the general Emba area of Kazakstan, natural gas has been struck in several shallow holes. A thorough detail survey of over 35,000 square kilometers is now being conducted. This survey has to date located over 600 salt domes. Three fields, Shubar-Kuduk, Saghis and Djasky May are being developed.

Maikop Developments

In the Maikop area, on the northwest flank of the Caucausus Mountains, a new field was opened at Abuzishskoe. This is in line with that trend of pools from Asphalt Mountain through Kura Tstse, Kutais, etc. Additional development in this area from the village of Shirvan to the end of the Taman Peninsula indicates that fields will be discovered along this entire length (200-250 kilometers). Southeast of Maikop, in the Malgobek-Grozny area, 1938 prospecting on the Tersk Mountain range developed new oil and indicated a possible new line of production. Southeast of this area, in Daghestan, the large gas and oil structures ranging from Derbent northwest to Makhach-Kala (see accompanying map) are being developed. South of Derbent, at Khosh-Menzil, at a depth of 400 meters, wet gas was discovered in 1938. Several naphtha wells were brought in. The estimated gas reserves of Daghestan are 10-15,000 million cubic meters, aside from the estimated 17,000 million cubic meters at Izberbash and Achi Su. On the south flank of the Caucausus, in western Georgia, at Nordia, high-gravity oil was discovered in July, 1938, at 284 meters. The discovery well initialled 700 barrels per day. The oil is very high gravity with 52 percent light fractions. At Subsa, in southern Georgia, another discovery was made in 1938. Pipe line outlets for these two fields are now being constructed.

Nebit-Dag Producing

Across the Caspian Sea in Turkmenia, the Nebit-Dag field was placed on production with well No. 71 initialing 2100 barrels. Further east in Uzbekistan,

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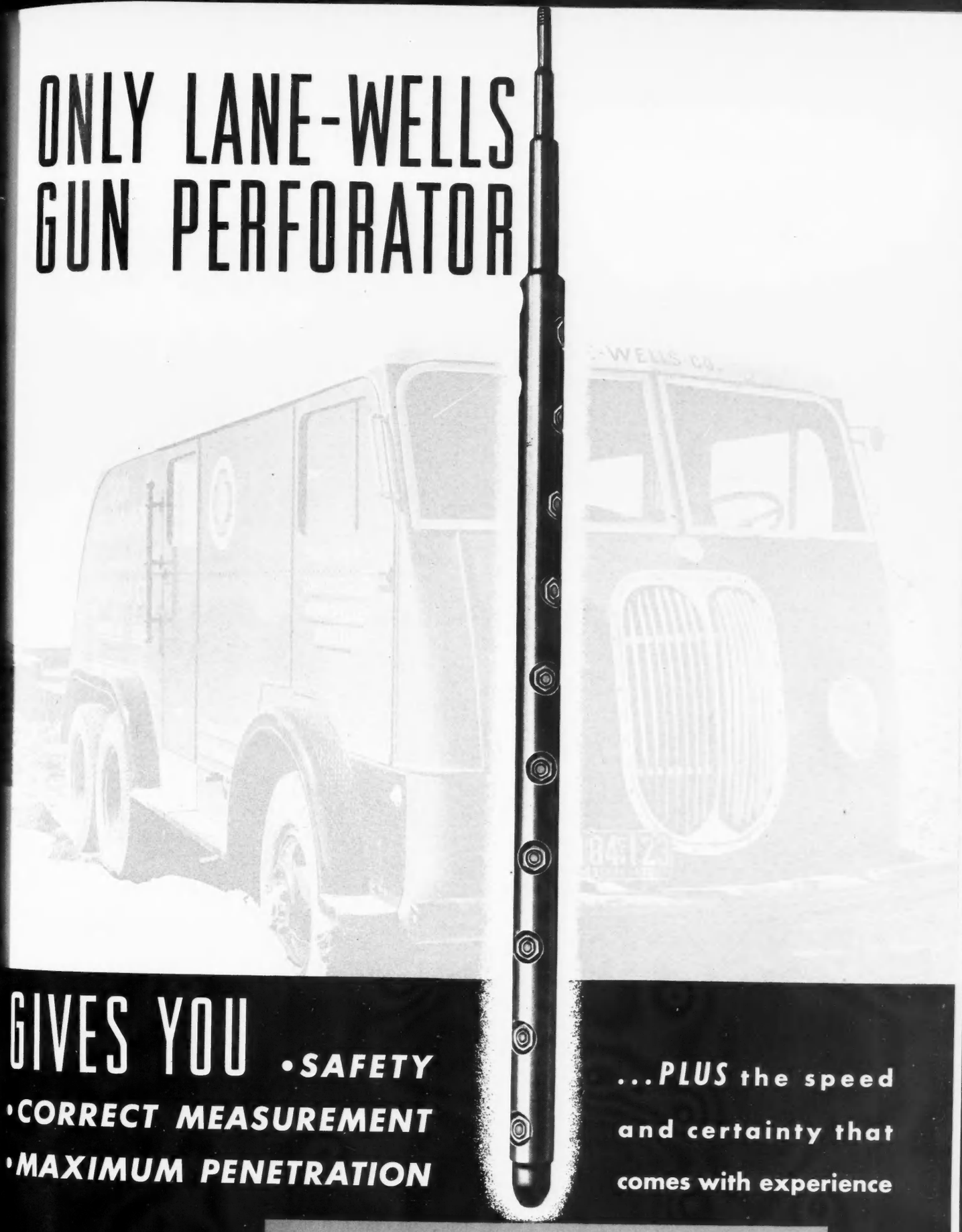

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additional production was found in 1938. The Andizhan field developed in 1937 and extended in 1938 has proven a structure 20 kilometers long, and 8-10 kilometers wide, with an area of 30 square kilometers. The wells initial 200 to 300 barrels daily and this field is scheduled to be exploited extensively in 1939-42. During this period, 1,000,000 meters of drilling is contemplated. East of Andizhan, in Kirgizia, the Changir Tash field first discovered in 1932 was placed on production in 1938. This field now has 650 hectares proven and calls for 43 wells to be drilled in 1939. Eight kilometers southwest of this field is another, Ak Mechet, with a proven area of 1200 hectares, which is to be developed during 1939.

Far Eastern Discovery

One of the most important discoveries of 1938 is in the far eastern territory, in what is known as the Ayano-Maisk area. Structures on the northern and northeastern slopes of the Aldan Mountain range from Lake Baikal to the Sea of Okhotsk have long been considered potentially productive by Gubkin, even though the possibilities were limited to the Cambrian formation. On one of these structures, flowing Cambrian production was discovered at 372 meters. The difficulty of operations in this district can be seen from its isolation from trained personnel, equipment and transportation. In addition, the soil is eternally frozen to a depth of 150-170 meters. During 1939, development is to proceed at the junction of the Tolva and Anga Rivers. Due to the extremely difficult operation conditions in this area, development will undoubtedly be very slow. Both geographically and stratigraphically, this is the most important of the 1938 discoveries.

Gubkin on Reserves

Gubkin of the Soviet Academy of Science estimates the world's known reserves at 7075 million tons and credits the Soviet Union with 3877 million tons (55 percent); Europe and Asia aside from the Soviet Union with 13 percent; United States, 25 percent; the balance of the western hemisphere 5 percent, with Africa and Australia containing 2 percent. Some Soviet geologists estimate world reserves at 9 to 10 billion tons, thus reducing the Soviet's precentage to 40 percent. Of the Soviet reserves, the Ural and Volga regions are estimated at 1191 million tons. As against the January 1, 1937, reserves (3877 million tons), Gubkin estimated the reserves in 1933 at but 200-250 million tons. Thus, in his opinion, geological exploration and subsequent development have expanded the reserves from 1933 to 1937 by 1400 percent.

On November 30, 1938, Gubkin estimated that during the year 1937, the commercial reserves of the Ural-Volga area rose from 34,600,000 tons to 156,600,000 tons (his classification A plus B [Proven]). Those of class C1 (Presumed) from 434,600,000 tons to 1,010,000,000 tons. Those of class C2 (Prospective) from 721,300,000 tons to 1,539,700,000 tons. Further large scale increases were made in 1938, though the figures are not yet available.

200 Producing Fields

Approximately 45 districts are now under commercial exploitation in which 200 separate fields are being produced. Eighty additional areas are being prospected for deep drilling.

The third Five-Year Plan, terminating in 1942, calls for an ambitious expansion of the petroleum industry. The Ural, Emba, Volga districts, which at present produce 8 percent of Soviet oil, are to be raised to 18 percent, while the Baku area is to be doubled. The expansion of the natural gas industry is to be taken up, back pressures are to be applied, studies of oil and gas ratios to be commenced and in general, American drilling and production methods are to be copied. Light portable equipment, using internal combustion drilling engines are to be manufactured and put into general use. The first of these has already been manufactured. The Grozny fields plan to double their output with 70 percent to come from new areas. The time between discovery and exploitation is to be reduced. This has been one of the outstanding weaknesses of the Soviet production department to date. In the opinion of the author, this highly ambitious program will in all probability not be achieved in its entirety. The training of the personnel necessary to such achievement cannot be accomplished in the period allotted. However, undoubtedly, great advances in technique, production and equipment will be made during this period, as have been during 1938.

Transportation

Prior to 1917, transportation of petroleum was almost entirely by small, inefficient tank cars. The first pipe line was laid between Baku and Batum from 1898 to 1906 with a length of 853.7 kilometers. Up to 1917, only 1321 kilometers of trunk line were laid in Russia. During 1927-36 a total of 4586 kilometers were laid with a capacity of 15,780,000 tons annually. The main trunk lines laid are as follows:

Russia's Main Pipe Lines

Route	Diameter in Inches	Length in Kilometers	Year Constructed
Baku-Batum	10	834.5	1928-30
Grozny-Tuapsi	10	618	1927-28
Armair-Trudovaya	10	485.4	1932
Caspian Sea-Orsk	12	709.9	1932-35
Koschalyl-Orsk	8-10	119	1935
Makhach-Kala-Grozny	12	154.9	1935
Syzran-Batraki	10	22	1937
Ishimbaevo-Ufa	6	165.8	1937
Gorskaya-Grozny		56	1938*
Malgobek-Grozny	10	106	1938**
Izberbash-Makhach-Kala		60	1938**

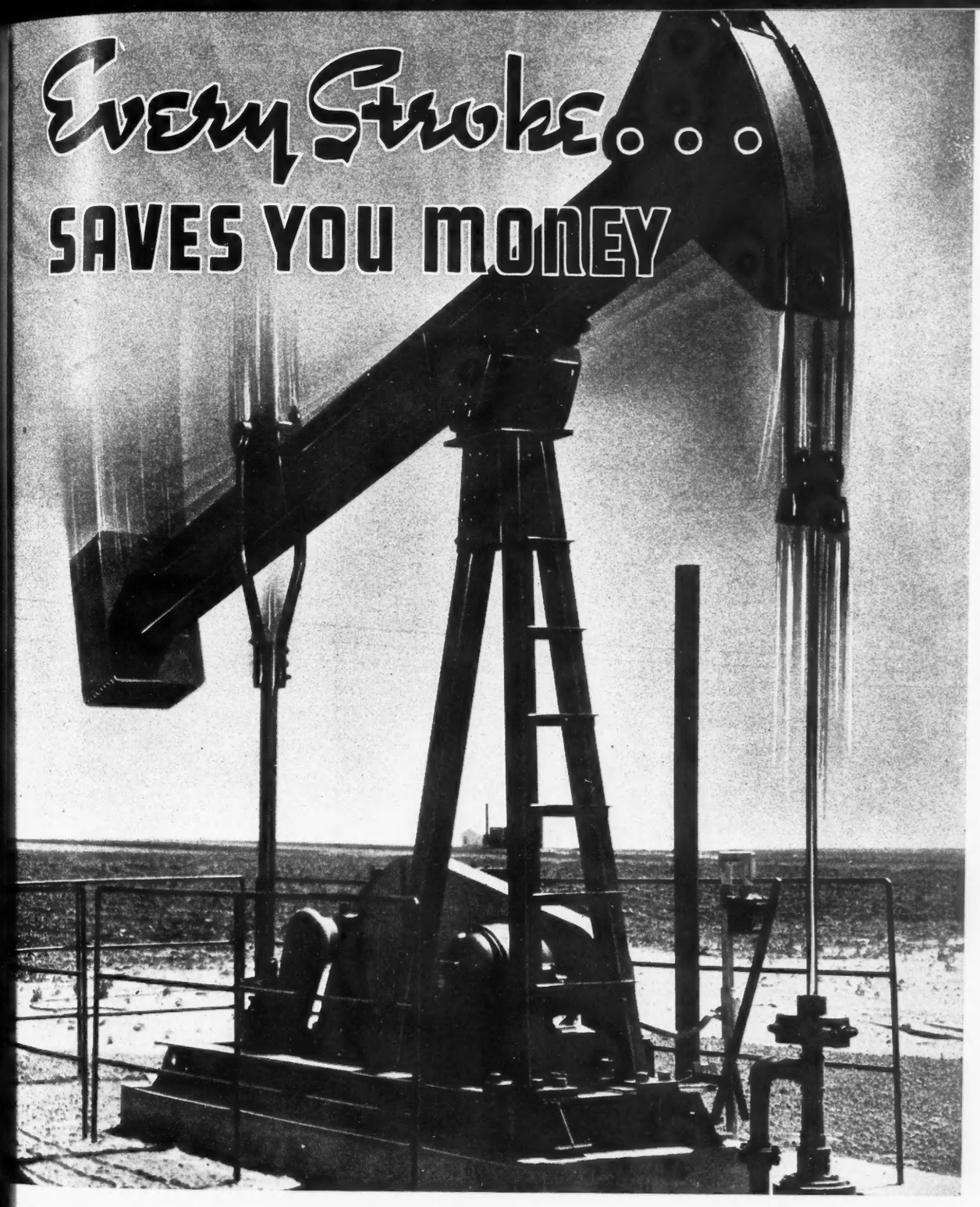
* Completed. ** Started.

It can be seen from the above tabulation that the pipe line program is being accelerated. This is due in part to better construction technique, more trained personnel, as well as a greater supply of pipe from the expanding metallurgical industry.

Construction Progress

Conditions under which pipe lines are laid in the Soviet Union are varied. Climate, topography and personnel are extremely variable. The Ishimbaevo-Ufa line was laid under temperature conditions of 15 to 20 degrees C. below zero. This line, laid in 1937, was the first to receive a protective covering. It was the first on which complete mechanization was applied in construction, such as mechanical ditching and covering machines, motor haul of pipe and material. Ten river crossings were laid on this line.

In contrast to this mechanized process, many areas,



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Terrain in the region of Krasnokamsk fields is such as to permit skidding of wooden derricks from one location to another. Russian made tractors are getting the job done here.

such as Emba, formerly resorted to picturesque though antidated means (1935). Modern transportation and water are rapidly removing this necessity.

In addition to the lines started in 1938, as noted above, an 8-inch line is to be laid from Alat to Sangachaly in the Stalinsk-Batum area, also, a line from Gorskaya to Grozny and one from Touimaza field to the railroad. A long transportation line from Guriev (Emba area) to Orsk is to be extended and its capacity increased from the present 500,000 tons to 1,500,000 tons per year. This is not to be confused with the Caspian Sea-Orsk line noted in the tabulation.

Third Five-Year Plan

The third Five-Year Plan calls for a line from Orsk to Omsk in Central Siberia. In addition to the pipe line construction noted, a railroad from Guriev to Aktiubinsk (Emba area) is being built; 518 kilometers is now completed. Another railroad from Kandagach to Orsk is now under construction. Feeder lines and narrow gauge railways, as well as highways, are being constructed to the separate oil fields of the Emba area.

The Emba pipe line system is to be extended by 1942 approximately 600 kilometers. There is a decided effort being made to develop this area as the second largest oil base in the Soviet Union, Baku being first. The development of this area has two main considerations: transportation and water. The transportation problem is being vigorously undertaken as noted above. The area is extremely arid, there being no fresh water springs or rivers in a large portion. In an attempt to solve this water problem, the longest high-pressure water main in the world is being constructed from Guriev to the oil fields. The length of the system when completed will be 640 kilometers, of which approximately 440 kilometers is now under operation, the remaining 200 kilometers under construction. In addition to providing water for the area, this project will stabilize the nomadic population and tend to solve the problem of local field workers. Both quantitatively and qualitatively, the petroleum transportation problem made strides in 1938.

Refining

Prior to 1914, only 62 percent of Russian oil was run to Russian stills. By 1928, 77 percent was being run. By the end of 1936, over 90 percent. Before 1928, there were no cracking plants in Russia, while in 1936

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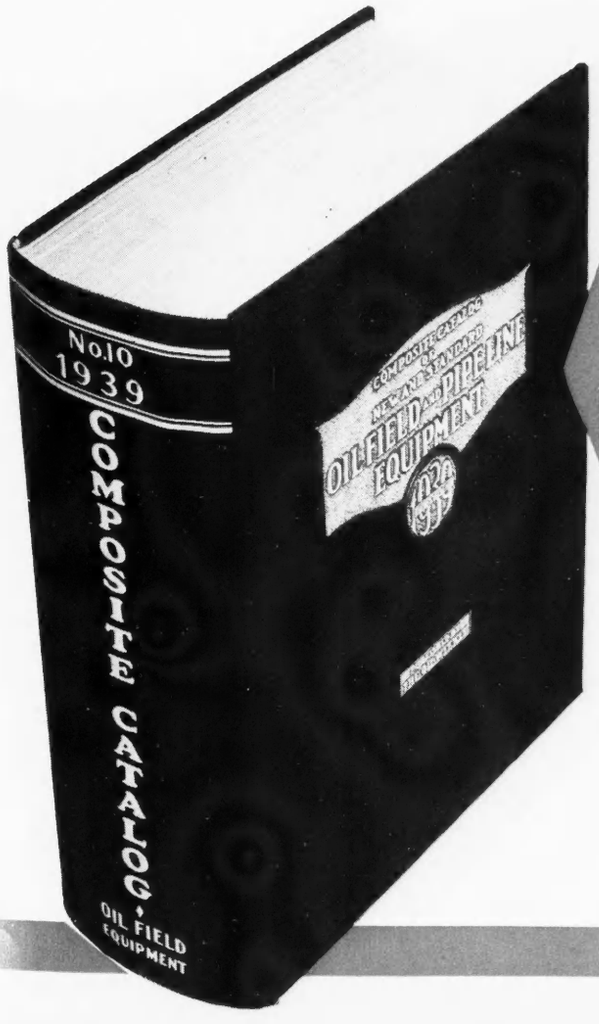

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58 percent of all gasoline produced was cracked domestically. At present, new products, such as paraffin, asphalt, coke, lamp black, lubricating oils and greases are being made, many for the first time. American refining methods are envied and are being studied. In 1937, four cracking plants with an annual capacity of 1,625,000 tons were being completed. Early in 1938, the large plant at Moscow with a capacity of 650,000 tons per year was completed. Loading docks, barges and tank farms adjacent to this plant are being constructed. The inland waterway system being developed, makes this possible. In October, 1937, the second unit of the Ufa refinery (1,000,000 tons per year capacity) was started, as were three new cracking units at Grozny. In 1938, a natural gasoline plant at Izberbash was started, the first field natural gasoline plant in the Soviet Union to the author's knowledge. In July, 1938, the refining capacity was divided as follows: 37 shell stills, 43 pipe stills, 23 lube oil stills, 68 cracking plants—a total of 171 units with a capacity of 1,157,000 barrels per day. In 1939, a refinery is to be built near Szyran to take care of middle Volga oil. The following table shows the Russian oil refined at home in tons of crude oil:

1913	5,702,000
1920-21	2,822,000
1927-28	8,882,000
1932	20,214,000
1937	26,400,000

During January to November (inclusive), 1937, 171,103,000 barrels were run to stills. During the same period of 1938, 174,496,000 barrels were run, a slight increase. Production of benzine was increased 20 percent over that of 1937 as a result of better refining methods.

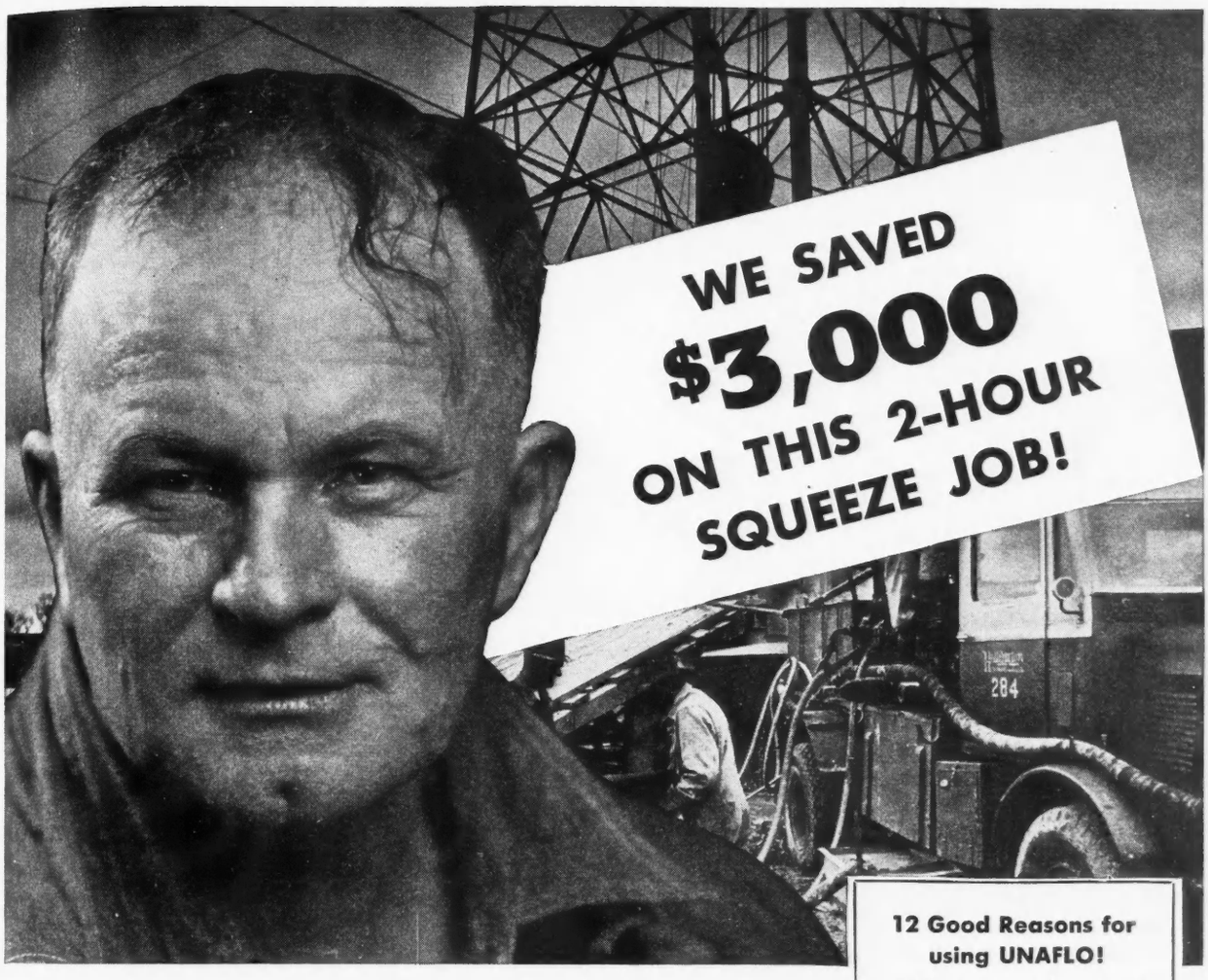
The latest refining methods are being introduced, including polymerization and hydrogenation plants. K. K. Dubrova, director of the Cracking Laboratory of the Academy of Science, claims to have developed a new vapor phase complete cracking system giving an exceptionally stable product with an octane number of 81 instead of the 70 previously obtained, with the same crude. The first plant for testing this process under industrial conditions was completed in 1937 in the Mendeliev refinery. The third Five-Year Plan calls for the construction of new refining centers in the Ural-Volga region near Syzran, Emba region, at Orsk, and central Asia.

Miscellaneous Developments

In recognition of the shortage of skilled workers and trained technical personnel, during the year 1938, the Soviet Union set up several additional schools for their training and education. The concentration was in the areas where development was to take place during the third Five-Year Plan, as well as in the older areas. The year also saw extensive experimentation in destructive distillation of coal with a plant at Kharkov, and also experiments in the secondary recovery methods from exhausted wells. The year saw new techniques in the fields, for the first time in the Soviet Union, such as moving large derricks with tractors. In 1938 a factory for the production of instruments and small oil field equipment was constructed at Sterlitamak. At Sverdlovsk, production of light, portable, variable speed rotary equipment to operate in shallow fields was commenced. Tests of the equipment were successful. The Liebknecht works at Dneiperpetrovsk started production of high chromium content cracking tubes for refinery equipment. These were formerly imported. An experimental shale oil plant started operation in Leningrad. The Verkni-Sergenski plant materially increased the production of drilling equipment in 1938. A new plant at Kuibishev for the manufacture of drilling equipment was started in 1938 to be completed in 1939. It is especially designed to take care of the Ural regions' lithological problems. Also in 1938, the Krasnoyarsk plant for drilling equipment was started—to be completed in 1939. Also, the Grozny machine building plant commenced production on oil field equipment, more especially hot oil pumps and mud pumps. During 1938, L. N. Kaganovich reorganized drilling practices, bringing them more into line with American technique. As a result, marked increases in drilling speeds were noted.

Conclusions

From a thorough consideration of the data herein presented, which supplements the material previously presented in THE OIL WEEKLY by the author, it is felt that considerable progress was made during 1938 in the petroleum industry of the Soviet Union on many fronts. Furthermore, that the progress made cannot be measured entirely in terms of oil produced, miles of pipe line built, nor in barrels of the product refined. The advance in training of personnel, building of equipment factories, introduction of new techniques, and preparing new areas for development during the year, will not show up in immediate production statistics, though they will be reflected in future years. The special problems (geographic size, population shifts, wide climatic variations, as well as insufficient specialized equipment and unskilled personnel) makes comparisons between the developments in the Soviet Union and those of other areas (homogeneous peoples and highly developed technical industry) impracticable. While the developments during 1938 have been appreciable, the outstanding leadership and recognition of the United States in the field of technology is attested to by the attempts of the Soviet Union to simulate same. The increasing industrialization of the Soviet Union with its ever increasing demand for petroleum products, precludes the possibilities of serious competition in world petroleum markets for many years to come.



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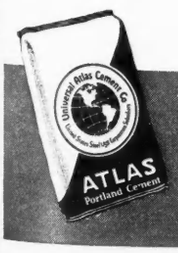
10. Makes squeeze and plug-back jobs easier, surer, more successful.
11. Permits operator to control cement rather than being controlled by it.
12. Has been proved by oil industry by consistently "coming through in the clinches" ever since its introduction.

OW-U-6



Universal Atlas
CEMENTS

Drilling Up Sharply in July

By L. J. LOGAN, Associate Editor

A REMARKABLE increase in drilling occurred in July, well completions having been more numerous than in the corresponding month of 1938 for the first time this year.

The large expansion of field work was not seasonal in nature but due, apparently, to a general increase of confidence in the future of business and of the oil industry.

Any definite improvement in the general business situation usually is followed quickly by a stimulation of oil and gas well drilling, as was the case, for example, a year ago. Drilling was lagging in the spring of 1938, but in May, a recovery in business commenced; and also in May, well completions increased sharply.

Similarly, an increase in business activity has occurred lately, as evidenced by a sharp upturn in the Federal Reserve Board's index of industrial production in June; and oil well drilling has promptly responded with an exceptional increase.

Not only general business conditions but also, to some extent, conditions within the oil industry have been conducive to increased drilling.

Well completions in the United States averaged 82.8 daily in July, having increased 14.5 percent from the 72.3 daily of June. The completions of July, 1939, were 9.2 percent greater than the 75.8 daily of July, 1938. They were, however, 20.5 percent lower than the 104.1 daily of July, 1937, when drilling hit its post-depression peak.

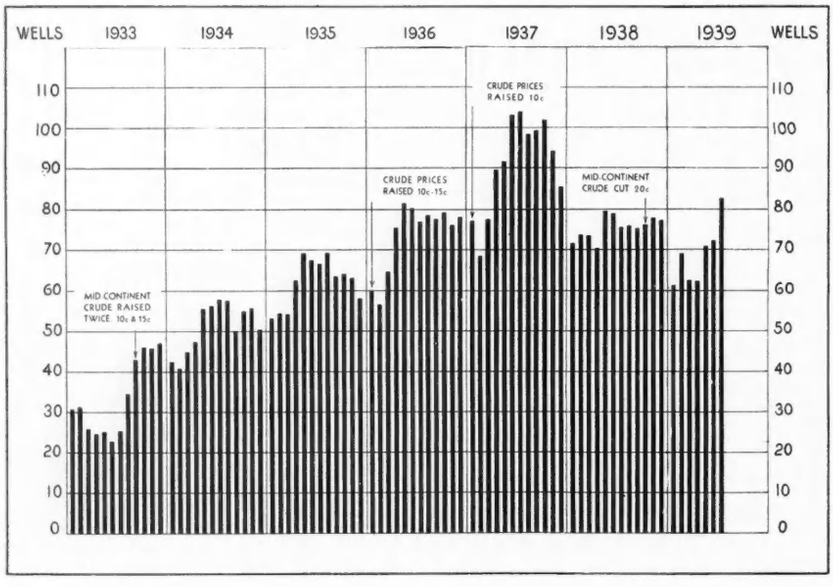
Whereas drilling was 9.2 percent greater in July, 1939, than in July, 1938, field work earlier this year had been running about 10 percent under the 1938 curve.

Figures presented herewith show the amount of drilling that has occurred in July in each year from 1933 to 1939.

July of:	Average Number of Wells Completed Daily
1933	25.4
1934	57.8
1935	66.9
1936	77.0
1937	104.1*
1938	75.8
1939	82.8

*Maximum field activity for any month since depression.

Average Number of Wells Completed Daily in U. S.
(By Months, January, 1933-July, 1939)



So far this year drilling has been highly irregular, no definite trend having been established. In the first three months of the year, completions were running around the comparable levels of 1936. In April and May the relatively lower trend of 1935 was approximated. In June a level mid-way between the curves for 1935 and 1936 was followed. In July the activity jumped above the levels of 1936 and 1938, having exceeded the records for all post-depression years except 1937.

The net result has been that completions have been 5.2 percent less numerous in the first 7 months of 1939 than in the corresponding months of 1938, those for the two periods having totaled 14,986 and 15,809, respectively.

So far this year, drilling has conformed very closely with the forecast for 1939 made by this publication in the Yearbook number, January 30, 1939, page 52. In that forecast it was estimated that completions would be 5.7 percent less numerous in 1939 than in 1938. Actually, in the first seven months, drilling ran 5.2 percent lower.

However, it now is indicated that for the year as a whole, completions may show only a very small decrease from those of 1938.

Inasmuch as July, 1939, was more active than July, 1938, or July, 1936, it appears quite possible that during the remainder of the year completions may run approximately the same as in the corresponding months of 1938 and 1936. In the final five months of 1936, completions in the United States totaled 12,009, and in the last five months of 1938 they totaled 11,783. If a similar number of wells should be completed in the last five months of 1939, in addition to the 14,986 finished in the first seven months, the year's total would be approximately 27,000 completions, or only 1.9 percent less than the 27,528 of 1938.

First Seven Months

Although there has been less drilling this year than last year for the United States as a whole, sev-

eral states and districts have shown increases.

Illinois has had almost four times as many well completions this year as last year, those in the first seven months of 1939 having totaled 2109, as compared with 625 in the corresponding months of 1938.

Illinois ranks next after Texas, the leader, in the tabulation of completions by states in 1939, having furnished over one third as many new wells. Illinois lately has been accounting for almost 40 percent as many completions as Texas, twice as many as either Pennsylvania, Oklahoma, or Michigan, more than three times as many as Kansas, and four times as many as Ohio, Louisiana, or California.

The Illinois development has stimulated drilling in the adjoining state of Indiana, where completions have been over 50 percent more numerous this year than last year.

Outside of Illinois, the most noteworthy increase in drilling this year has been in Michigan, where 823 wells were completed in the first seven months, compared with 469 in the corresponding months last year, an increase of 75 percent. The active drilling in Michigan has followed opening of prolific shallow fields in the southwestern part of the state.

Although the outstanding increases in drilling this year have been those in the Middle West, important gains over last year have occurred also in the Rocky Mountain states. In that region, field work has been stimulated by increased demand for crude, following expansion of refining facilities in the district and in the Pacific Northwest. Colorado furnished three times as many new wells in the first seven months of 1939 as in the similar period of 1938, Montana over twice as many, New Mexico 22 percent more, and Wyoming 13 percent more.

Arkansas is the only state in the Mid-Continent that has had more drilling this year than last year, completions having run 6 percent higher in the first seven months.

Louisiana and Texas have furnished fewer completions this year than last year, but several districts in those states have registered increases. South Louisiana shows a 23 percent gain, West Central Texas 50 percent, and the Corpus Christi district of South Texas 14 percent.

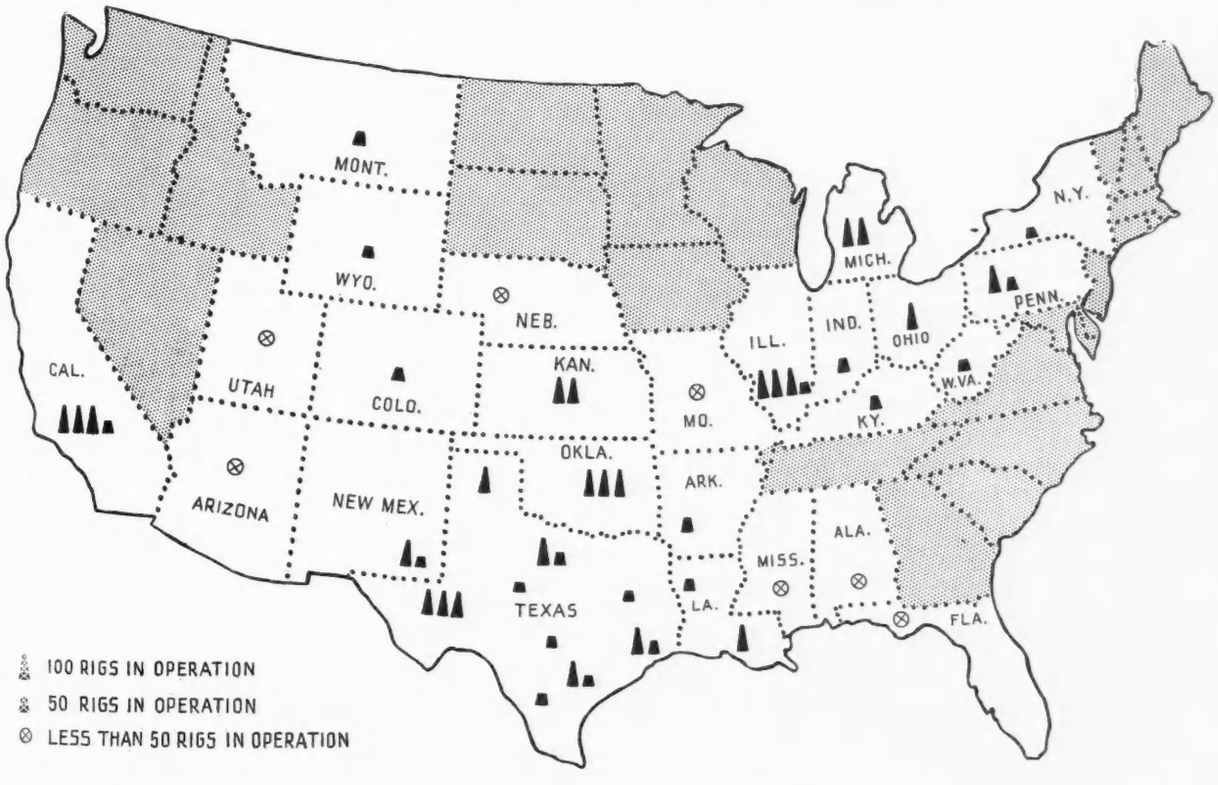
Areas other than those mentioned above have had less drilling this year than last year.

Largely because of lower average crude prices, despite several increases since the beginning of the year, considerably fewer wells were drilled in the Appalachian states in the first seven months of this year than in the similar period last year. Pennsylvania drilling has been only about two thirds as extensive this year as last year and that of New York and West Virginia about three fourths as great, although Kentucky and Ohio have supplied nearly as many new wells this year as last year.

California has proved more active this year than generally anticipated, the 606 completions in the state during the first seven months having been only 21.4 percent short of the 770 for the corresponding period last year.

Although July brought some revival of drilling in Kansas, that state has been obliged to sacrifice markets for crude oil to Illinois, and in the first seven months this year, it furnished 27.3 percent fewer

Fewer Rigs in Operation August 1 Than July 1



new wells than in the similar period last year.

Oklahoma, too, has sacrificed markets to booming Illinois, but completions this year have been down only 4 percent.

Completions have been only two thirds as numerous this year as last year in North Louisiana.

For Texas as a whole, completions are down 21.9 percent this year, 5803 wells having been completed in the first seven months, compared with 7427 in the corresponding months last year. The East Texas field has had only one fourth as much drilling, and the rest of Eastern Texas about 60 percent as much; the Texas Panhandle two thirds as much; and North Texas three fourths as much. Declines of less than 10 percent from last year are indicated for West Texas, the Texas Gulf Coast, and the Laredo and San Antonio areas of South Texas.

Rigs in Operation

Drilling rigs in operation in the United States on August 1 totaled 3567, having decreased 159 from 3726 as of July 1. The active operations on August 1 were ½ of 1 percent less numerous than the 3737 of August 1, 1938.

Rigs in Use August 1 Total 3567 Following Decline in July

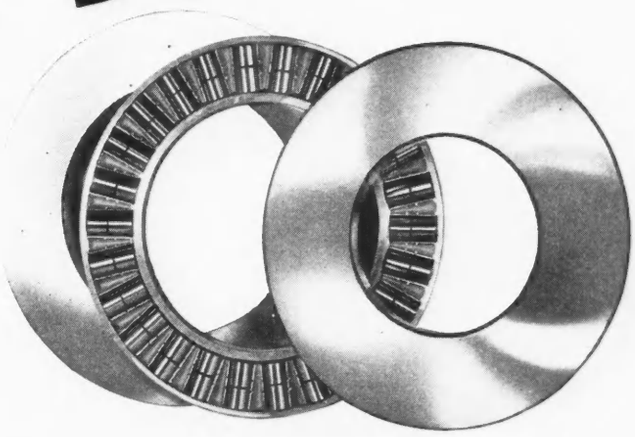
STATE OR DISTRICT	TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shut-Down)				DETAILS OF AUGUST 1, 1939, ACTIVITY					
					Rigs in Operation			Prelim. Activity		
	Aug. 1 1939	July 1 1939	Aug. 1 1938	Percent Change from Year Ago	Drilling	Rigs Up	Shut-down	Derricks	Locations	Total Operations
Arkansas	43	45	45	— 4.4	31	4	8	7	3	53
Arizona	8	6	...	...	7	...	1	...	5	14
California	327	333	367	— 10.9	208	73	46	34	36	397
Colorado	26	29	22	+ 18.2	11	...	15	...	1	27
Eastern States	820	848	809	+ 1.3	452	119	249	94	111	1,025
Illinois	338	339	237	+ 42.6	143	54	141	59	72	469
New Fields	226	226	174	+ 29.9	102	41	83	46	51	323
Rest of Illinois	112	113	63	+ 77.9	41	13	58	13	21	146
Indiana	60	56	30	+100.0	37	6	17	7	14	81
Kentucky	64	74	76	— 15.8	34	5	25	9	11	84
New York	36	27	90	— 59.8	27	7	2	1	2	39
Ohio	115	122	148	— 22.3	61	19	35	4	2	121
Pennsylvania	145	161	120	+ 20.8	109	21	15	12	8	165
West Virginia	62	69	108	— 42.6	41	7	14	2	2	66
Kansas	218	251	208	+ 4.8	174	25	19	11	9	238
Louisiana	184	194	242	— 24.0	154	11	19	22	57	263
North Louisiana	70	64	100	— 30.0	51	3	16	8	2	80
South Louisiana	114	130	142	— 19.7	103	8	3	14	55	183
Michigan	207	195	185	+ 11.9	147	19	41	4	28	239
Missouri	22	...	...	...	7	2	13	2	1	25
Montana	41	24	43	— 4.6	24	...	17	...	2	43
Nebraska	1	1	3	— 66.7	1	...	...	...	1	2
New Mexico	146	146	123	+ 18.7	115	6	25	5	14	165
Oklahoma	324	388	262	+ 23.7	226	26	72	46	34	404
Southeastern States	15	14	20	— 25.0	12	...	3	...	...	15
Alabama	2	1	3	— 33.3	1	...	1	...	...	2
Florida	3	2	4	— 25.0	2	...	1	...	...	3
Georgia	...	1	...	...	...	...	...	...	...	...
Mississippi	10	10	13	— 23.1	9	...	1	...	...	10
Texas	1,112	1,180	1,353	— 17.8	864	63	185	57	339	1,508
East Texas Field	8	14	52	— 84.5	5	...	3	2	...	10
East Texas Border Counties	6	18	25	— 76.0	4	2	...	3	...	9
Rest of East Texas	37	48	43	— 13.9	15	2	20	7	10	54
North Texas	155	174	253	— 38.7	116	5	34	5	48	208
South Texas	283	272	318	— 11.0	222	21	40	15	64	382
Corpus Christi Area	158	152	155	+ 1.9	134	11	13	6	39	223
Laredo Area	59	64	87	— 32.2	46	3	10	4	16	79
San Antonio Area	66	56	76	— 13.2	42	7	17	5	9	80
Texas Gulf Coast	139	143	136	+ 2.2	127	7	5	16	71	226
Texas Panhandle	91	94	108	— 15.7	74	12	5	2	11	104
West Texas	322	338	333	— 3.3	254	9	59	7	123	452
West Central Texas	71	79	85	— 16.4	47	5	19	...	12	83
Utah	3	3	3	...	3	...	...	...	...	3
Wyoming	70	69	52	+ 14.6	50	2	18	...	...	70
Total United States	3,567	3,726	3,737	— 0.5	2,486	350	731	282	641	4,490

Completions and Production for First Seven Months Close to 1938 Levels

STATE OR DISTRICT	* JULY, 1939, COMPLETIONS AND CRUDE OIL PRODUCTION						COMPLETIONS AND PRODUCTION IN FIRST SEVEN MONTHS, 1939 AND 1938								
							WELLS COMPLETED			DETAILS OF 1939 DRILLING				BARRELS PRODUCTION		
	Total Wells	Oil	Gas	Dry	Initial Production	Production for July	1939: 7 Mo.	1938: 7 Mo.	Percent Change	Oil	Gas	Dry	Initial Production	1939: 7 Months	1938: 7 Months	Percent Change
Arkansas	24	23	..	1	11,603	1,851,400	134	126	+ 6.3	107	...	27	46,486	11,625,050	10,196,000	+14.0
California	98	87	4	7	62,255	18,974,000	606	770	— 21.4	472	5	129	397,171	130,897,300	148,788,100	—12.2
Colorado	4	2	..	2	75	122,650	15	5	+200.0	4	2	9	315	817,550	844,250	— 3.2
Eastern States	972	652	128	192	164,894	†2,939,550	4,563	3,772	+ 21.0	2,967	693	903	582,112	†20,491,450	29,902,000	—31.5
Illinois	‡400	‡319	4	77	158,031	8,399,900	‡2,109	625	+238.0	1,657	20	432	558,531	40,454,650	...	...
Indiana	26	11	1	14	4,010	...	110	69	+ 59.4	32	18	60	7,900	...	...	...
Kentucky	74	30	5	39	1,489	...	367	398	— 7.8	154	44	169	10,940	...	...	...
New York	‡74	‡69	1	4	236	...	‡305	‡434	— 29.7	‡269	21	15	1,045	...	...	...
Ohio	113	29	54	30	784	...	512	513	— 0.2	113	265	134	1,855	...	...	...
Pennsylvania	‡227	‡187	21	19	319	...	‡860	‡1,347	— 36.1	‡697	113	50	1,088	...	...	...
West Virginia	58	7	42	9	25	...	300	386	— 22.2	45	212	43	753	...	...	...
Kansas	§153	§108	4	41	165,394	5,364,050	§774	§985	— 27.3	§552	29	193	725,884	34,094,500	34,905,700	— 5.3
Louisiana	108	67	4	37	21,430	8,535,600	588	619	— 5.0	373	20	195	115,272	56,640,950	54,919,600	+ 3.1
North Louisiana	18	11	2	5	3,460	2,186,200	203	308	— 34.0	131	11	61	42,972	15,326,950	16,809,150	— 8.8
South Louisiana	90	56	2	32	17,970	6,349,400	385	311	+ 23.7	242	9	134	72,300	41,314,000	38,110,450	+ 8.3
Michigan	170	101	9	60	50,140	2,116,000	823	469	+ 75.5	473	31	319	222,408	12,770,300	11,109,150	+14.9
Montana	24	16	2	6	2,091	500,500	74	32	+131.0	54	7	13	6,412	3,063,800	2,852,350	+ 7.3
New Mexico	64	51	..	13	25,305	3,371,200	350	285	+ 22.8	291	7	52	171,505	19,164,150	21,622,650	—11.1
Oklahoma	§205	§132	10	63	32,517	13,923,950	§1,200	1,250	— 4.0	§743	83	374	265,383	94,078,800	102,895,150	— 8.6
Southeastern States	2	...	..	2	...	...	7	16	— 56.2	1	...	6	...	...	...	...
Alabama	...	...	..	..	...	...	...	1	...	...	...	...	...	...	...	...
Georgia	...	...	..	..	...	...	1	1	...	...	...	...	...	...	...	...
Mississippi	2	...	..	2	...	...	6	12	— 50.0	1	...	5	...	...	...	...
Tennessee	...	...	..	..	...	...	...	2	...	...	...	...	...	...	...	...
Texas	1,059	717	38	314	451,709	42,434,300	5,803	7,427	— 21.9	4,114	170	1,509	2,676,316	286,632,550	274,295,850	+ 4.5
East Texas Field	35	33	..	2	125,978	11,861,750	310	1,275	— 75.5	304	...	6	926,777	83,452,150	89,383,650	+ 6.6
Rest of East Texas	33	11	4	18	2,761	3,027,800	181	304	— 40.5	76	22	83	30,731	20,439,150	20,094,050	+ 1.7
North Texas	224	135	3	86	44,881	2,747,150	1,025	1,462	— 29.8	617	4	404	246,195	15,048,300	15,279,850	— 1.5
South Texas	264	170	11	83	58,357	7,074,450	1,637	1,566	— 4.5	1,104	43	490	481,331	59,009,100	47,259,300	+24.9
Corpus Christi Area	147	95	7	45	48,035	...	798	695	+ 14.8	613	26	159	383,674	...	...	...
Laredo Area	86	53	4	29	8,609	...	602	604	— 0.3	375	15	212	87,880	...	...	...
San Antonio Area	41	22	..	19	1,713	...	247	267	— 7.8	116	2	129	9,777	...	...	...
Texas Gulf Coast	148	114	6	28	37,374	7,062,100	857	874	— 1.9	655	35	167	175,286	46,668,450	41,736,650	+11.8
Texas Panhandle	51	36	12	3	14,008	2,092,700	232	362	— 35.9	171	50	11	68,348	14,293,480	13,953,600	+ 2.4
West Texas	218	185	..	33	150,507	7,487,150	1,251	1,384	— 9.6	1,084	4	163	941,506	46,342,050	40,513,000	+14.4
West Central Texas	86	33	2	51	17,843	1,003,150	300	200	+ 50.0	103	12	185	27,722	5,666,550	6,076,000	— 6.8
Utah	...	...	..	..	...	...	...	1	...	...	...	...	...	...	...	...
Wyoming	14	10	..	4	2,427	1,965,600	59	52	+ 13.4	40	1	18	39,899	12,194,600	10,896,300	+11.9
Total United States	2,897	1,966	199	732	989,840	110,458,250	14,986	15,809	— 5.2	10,191	1,048	3,747	5,470,743	726,393,800	703,227,150	+ 3.3

*July completions cover not the calendar month, but five weeks, or 35 days, ended July 29. †Does not include Illinois. ‡Includes water input wells. §Includes salt-water disposal wells.

Emsco Swivels DEPEND ON BANTAM BEARINGS



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WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Predicts settlement of expropriation in year

Amicable settlement "within a year" of the controversy over Mexican expropriation of American oil properties was forecast in Washington, D. C., last week by William R. Vallance, assistant legal adviser of the State Department, despite reports that the American companies had rejected the latest proposal of the Mexican government, understood to offer them a minority voice in the management of the properties.

The basis of Vallance's prediction was the current report that a revolution threatens the Cardenas administration, resulting from dissatisfaction of workers with conditions under government operation of various industries which are less favorable than those prevailing when private interests were in charge.

The State Department official voiced his views on the Mexican situation at a meeting of the Federal Bar Association August 9. At the recent convention of the American Bar Association in San Francisco, Vallance, who was chairman of the section on comparative international law, introduced a resolution proposing that the oil dispute be submitted to immediate arbitration which, however, was not adopted.

Rich shale deposits found in Grodno region, Poland

Deposits of bituminous shale have been recently discovered in many places in the Grodno region of Poland, according to Jule B. Smith of Warsaw. An examination of specimens by the Warsaw Institute for Chemical Research has established the presence of 39 percent of combustible constituents, a much higher percentage than that in the Estonian bituminous shale, the industrial exploitation of which is a major enterprise in that country. The shale deposits of the Grodno region are found at a depth of only 2 meters under a layer of clay, and extraction would apparently be possible by cheap excavation operations. Further prospecting and researches will be effected by the State Institute for Geology.

Hungarian field averaged 472 tons daily in July

Development of Budafapuszta field in Hungary has progressed under direction of a Hungarian-Standard Oil Company of New Jersey organization to the point where it lists 15 producers out of 18 completions and a total recovery up to July 20 of about 9300 carloads of crude oil and 35,000,000 cubic meters of gas. Production of the field in July was 472 tons daily.

Footage involved in drilling 21 wells in the field amounted to 25,000 meters, and drilling activity is expected to increase during the remainder of 1939.

Ungarischer Volkswirt furnished the foregoing information.

Japan having trouble in financing oil purchases

Increasing difficulties encountered by Japan in financing purchases abroad are reflected in a reduction in her imports of American petroleum and its products during the first half of the current year as compared with the corresponding period in 1938, it is disclosed by an anlysis of the United States trade with the Far East compiled by the Department of Commerce.

Oil exports to Japan during the 6 months had a value of $21,777,000 this year as compared with $27,894,000 in 1938, and the trade was marked by a sharp reduction of crude petroleum purchases and an increase in refined products, prices of which were more attractive, the department reported.

Shipments of crude petroleum to Japan during the period totaled 7,844,000 barrels valued at $9,979,000, compared with 13,680,000 barrels valued at $19,065,000 last year, it was stated.

Other exports included 467,000 barrels of gasoline valued at $3,393,000 against 426,000 barrels valued at $2,643,000 in 1938; 2000 barrels of kerosene valued at $31,000 against less than 1000 barrels; 2,957,000 barrels of gas and fuel oil valued at $3,672,000 against 2,482,000 barrels valued at at $3,076,000; 2,351,000 barrels of residual fuel oil valued at $1,670,000 against 1,014,000 barrels valued at $912,000, and 202,000 barrels of lubricating oil valued at $1,261,000.

China Receipts Up

Exports of petroleum products to China, on the other hand, nearly doubled to reach a total of $1,332,000 compared with $682,000 last year, the department announced.

Included in shipments to China were 119,000 barrels of kerosene valued at $210,000, against 19,000 barrels valued at $38,000 a year ago, 238,000 barrels of gas oil and distillate fuel oil valued at 355,000, against 181,000 barrels valued at $231,000; 64,000 barrels of gasoline valued at $121,000 against 9000 barrels valued at $27,000, and 59,000 barrels of lubricating oil valued at $407,000, against 37,000 barrels valued at $220,000.

Despite Manchuria's rigid control over import and foreign exchange permits, oil exports to Kwantung increased from $1,386,000 for the first half of 1938 to $2,468,000 for the same period this year, and included 316,000 barrels of gasoline valued at $758,000, against 195,000 barrels valued at $521,000 in 1938; 638,000 barrels of crude oil valued at $935,000, against 255,000 barrels valued at $380,000; 212,000 barrels of kerosene valued at $354,000, against 142,000 barrels valued at $258,000; 39,000 barrels of gas oil and fuel oil valued at $51,000, against none, and 23,000 barrels of lubricating oil valued at $260,000 against 14,000 barrels valued at $166,000.

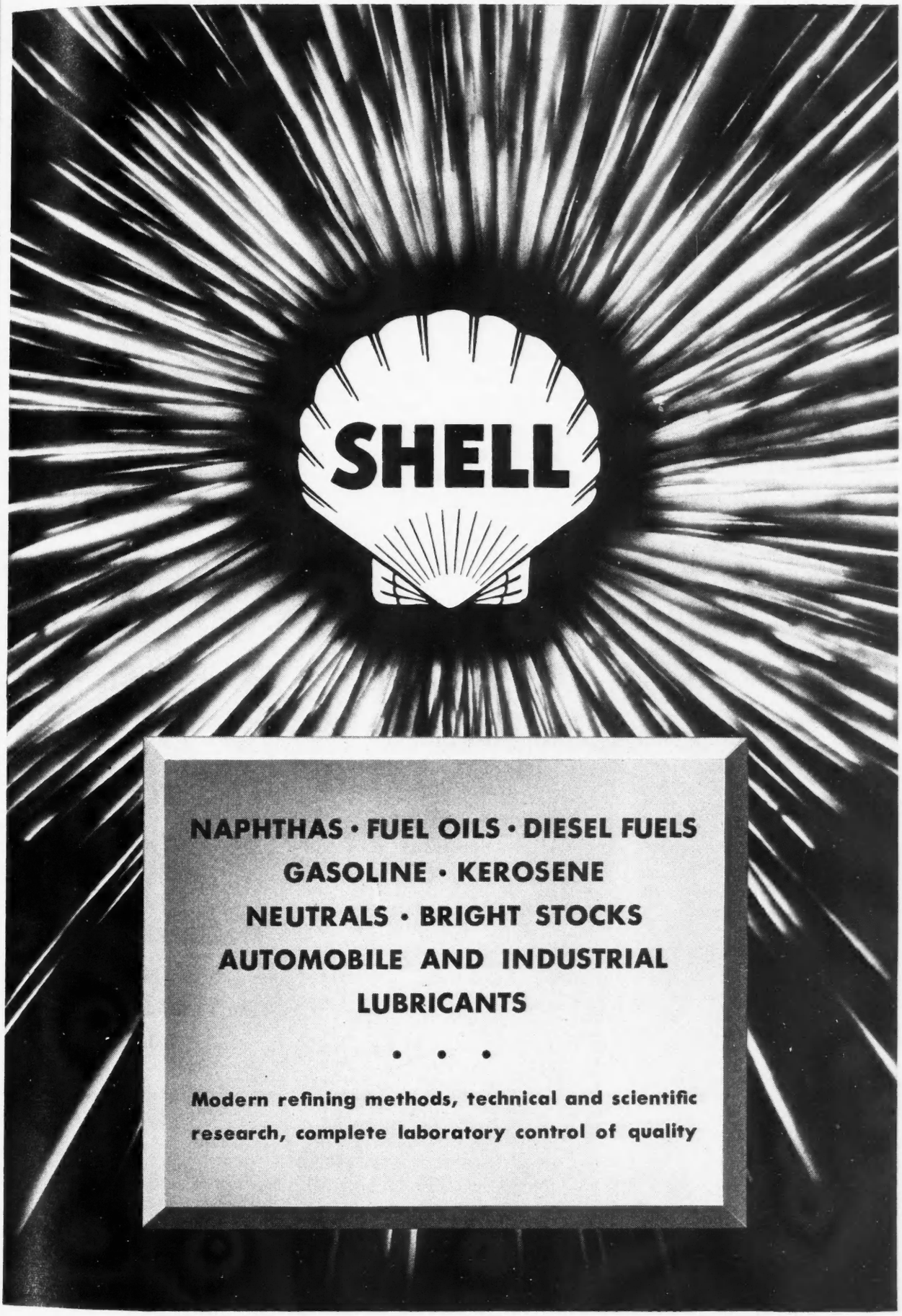
Petroleum trade with Hong Kong was below that of last year, totalling $737,000 against $959,000 and including shipments of 62,000 barrels of gasoline valued at $129,000, as against 66,000 barrels valued at $370,000; 55,000 barrels of kerosene valued at $91,000, against 48,000 barrels valued at $96,000; 251,000 barrels of gas oil, distillate fuel oil ad residual fuel oil valued at $299,000, against 133,000 barrels valued at $176,000, and 8000 barrels of lubricating oil valued at $63,000, against 24,000 barrels valued at $189,000.

To Go Abroad

Charles H. Hudson, graduate petroleum engineer of Texas A. & M. College and a resident of Laredo, has entered training with the Magnolia Petroleum Company to be groomed for foreign duty with the Socony-Vacuum Oil Company.

Trinidad production

Production of crude oil in Trinidad during June totaled 1,575,321 barrels, according to R. S. Mackilligan, inspector of mines and petroleum technologist.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MEN IN THE INDUSTRY'S NEWS

D. T. RING, Preston Oil Company, Columbus, Ohio, in his capacity as chairman of the Eastern District, Division of Production, American Petroleum Institute, has announced committees charged with handling details of the division's 1940 meeting, to be held in Columbus April 11 and 12. They are:

Program—J. J. Schmidt, East Ohio Gas Company, Cleveland, chairman; Gordon M. Gulley, Gulf Oil Corporation, Pittsburgh, and R. W. McIlvain, Jr., The Pure Oil Company, Olney, Ill. Registration—J. C. Askan, The Ohio Oil Company, Findlay, Ohio, chairman; I. W. Hartman, Gordon Oil Company, Mt. Pleasant, Mich.; T. H. Myers, Carnegie Natural Gas Company, Pittsburgh; and H. A. Sprowls, Kentucky Natural Gas Corporation, Owensboro, Ky.

Publicity—O. W. Van Petten, Columbian Carbon Company, Charleston, W. Va., chairman; Philip N. Faine, Ohio-Pennsylvania Grade Oil Producers Association, New Straitsville, Ohio; H. M. McClure, State Conservation Committee, Alma, Mich.; J. A. Thompson, Belmont Quadrangle Drilling Corp., Bradford, Pa., and William A. Watkins, The Carter Oil Company, Mattoon, Ill. Arrangements and entertainment—W. E. Ferguson, The Ohio Fuel Gas Company, Columbus, Ohio, chairman; E. V. O'Rourke, The Ohio State University, Columbus, Ohio, and Lester Woltz, Oil Well Supply Company, Columbus, Ohio.

W. A. DELANEY, JR., oil producer of Ada, Oklahoma, has been named chairman of the Tax Policy and Advisory Committee of the Independent Petroleum Association of America. The vice chairman is A. A. Seeligson, president, Transwestern Oil Company, San Antonio.

Members of this committee are: E. H. Moore, E. H. Moore, Inc., Tulsa; J. C. Hunter, Grisham-Hunter Corporation, Abilene, Texas; Al Buchanan, Al Buchanan Drilling Company, San Antonio; Fred Shemann, Petroleum Producers Company, Wichita Falls; Mills Bennett, Mills Bennett Production Corporation, Houston; W. M. Mattison, The Guiberson Corporation, Dallas; R. E. Parr, Phillips Petroleum Company, Bartlesville; James D. May, Stodel Oil Company, Dallas; J. G. Puterbaught, McAlester Fuel Company, McAlester, Oklahoma; L. M. Moffitt, Shreveport; F. A. Calvert, Saginaw, Michigan; Lloyd Williamson, California Star Oil Company, Fellows, California; W. M. Fulton, Fulton Petroleum Corporation, Shelby, Montana; Hollis Watson, Wilmor Oil Company, Artesia, New Mexico; C. P. Watson, Los Angeles; S. A. Yarnell and Gerald M. Smith, Wichita; E. N. Balch, Barnsdall Oil Company, Tulsa; Sam J. Brill, Kendall Refining Company, Bradford.

CHARLES FITZGERALD, manager of Texas operations for the Sinclair Refining Company, pipe line division, accompanied by Mrs. Fitzgerald, is vacationing in the Big Bend Country of Southwest Texas, and will also sample ranch life in northeastern New Mexico before returning to Fort Worth headquarters late this month.

JOHN R. DAVIS, assistant to the Texas-New Mexico division production superintendent of Magnolia Petroleum Company, Dallas, departed last week-end on a vacation trip to the New York Fair and to his boyhood home in Connecticut.

H. L. GARRETT, district superintendent for Atlantic Pipe Line Company, has been transferred from Wink, Texas, to Hobbs, New Mexico, relieving D. H. Starling, who has been granted sick leave. L. G. Winder, former assistant superintendent of the company's Texas City terminal, has been made superintendent of the Wink district.

R. OGARRIO, vice president in charge of production for The Texas Company, with headquarters at New York, and L. E. Barrows, of Houston, manager of the producing department, are on tour of production properties in the Mid-Continent.

B. C. DAVIS, San Angelo real estate dealer, has been appointed deputy oil and gas supervisor for the San Angelo district, embracing 14 West Texas counties, by the Texas Railroad Commission. He relieves Don Martin, who held the position for more than 14 years.

LOUIS C. ROBERTS, JR., division geologist for Stanolind Oil & Gas Company, Houston, has announced he will resign September 15 to enter business for himself. He has been with the company since 1931, in charge of the Texas and Louisiana Gulf Coast division. Before he came to Houston he was in San Antonio with Southern Crude Oil Company from 1929 to 1931. R. B. Mitchell will succeed Roberts, moving from the geophysical department.

WALLACE M. FORD, West Texas district land man for The Atlantic Refining Company, Midland, departed last week on a vacation trip to points in West Virginia, where he worked as a railroader before entering the service of the above company as a scout in 1920.

GEORGE L. GILBERT, manager of the land department of the eastern division of Union Producing Company, is convalescing in a hospital at Sanatorium, Mississippi.

C. G. HERRINGTON, assistant division engineer for Carter Oil Company, Mattoon, discussed "Selection of Surface Pumping Equipment for Shallow Wells" before the first regular meeting of the Illinois Basin Chapter of the American Petroleum Institute at Mattoon last week. D. T. Ring, chairman of the eastern district of the Institute's division of production, spoke on the relation of the institute to the oil industry.

BARRY SMITH came to Wichita from Chillicothe, Missouri, last week to pinch hit for Ross Wolf, Kansas district scout for The Texas Company who is vacationing on the Gulf Coast.

H. M. B. INGLIS, consulting geologist of Vancouver, British Columbia, is in Alberta, Canada, where he is supervising operations at North Taber Royalties test on the Taber structure, near the International boundary.

W. E. TAYLOR, Ira B. Taylor and F. L. McCullough are principals of the Taylor Oil Corporation which has been chartered as a Texas corporation. Headquarters are in Waco.

A. F. GROHE, head of Centralia Refining Company, discussed his company's Illinois operations before members of a Centralia civic organization last week.

GEORGE W. HANNEKEN, general manager of the manufacturing department, and Sidney A. Swensrud, head of the supply and transportation department, have been elected vice presidents of The Standard Oil Company of Ohio, it was announced last week by W. T. Holliday, president.

Swensrud's department covers the procurement of crude oil and other supplies, the construction and operation of crude oil and gasoline pipe lines, the coordination of refinery output with sales requirements and the movement of refined products to sales bulk plants.

Swensrud was born on a farm near Northwood, Iowa, attended a country grade school and the Northwood high school. In 1923 he graduated from the University of Minnesota. The next two years were spent with Washburn-Crosby Company in sales analysis work, followed by two years at Harvard School of Business, from which he graduated in 1927. For somewhat over a year he served as a member of the faculty of the Harvard School of Business in the marketing research department. He came with Standard Oil Company on August 1, 1928, as assistant to the president and as head of the department of business research, with special emphasis on marketing studies. With the increasing interest of The Standard Oil Company of Ohio in direct crude oil purchasing and production and pipe line transportation, Swensrud for the past several years has devoted practically all of his time to these problems.

Hanneken was born on a farm in Henry County, Missouri, and attended public school. He worked on the farm for several years and in 1902 joined The Standard Oil Company of Kansas at its Neodesha refinery as a pipe fitter helper, advancing from that position to supervisor of the cracking and coking stills. In 1917 The Standard Oil Company of Ohio started its plans for the construction of a refinery at Toledo and Hanneken was one of those employed to take charge of the planning of the refinery layout. With the completion of the refinery he remained in charge as superintendent. He came to Cleveland in 1936 as general manager of the manufacturing department. In his position as vice president, Hanneken will have charge of the company's refining facilities in Cleveland, Toledo, Lima and Latonia, Kentucky.

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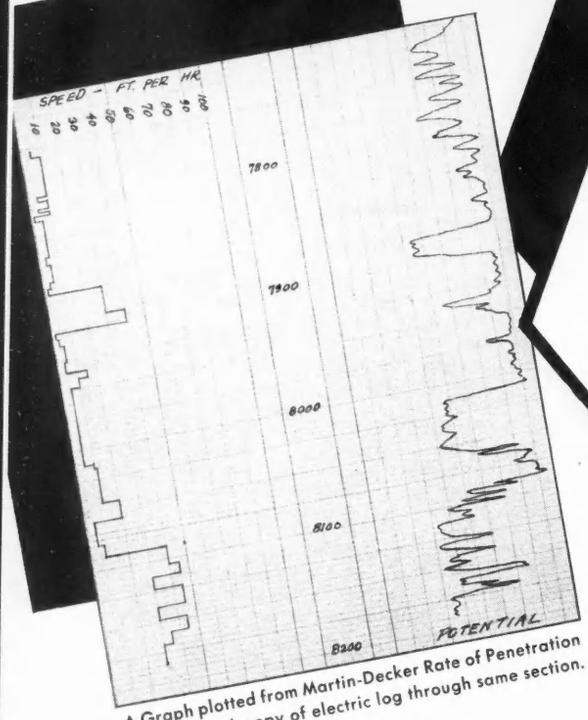

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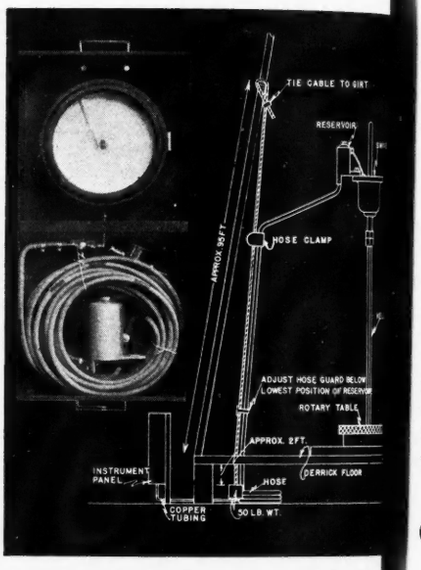

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THE WEEK'S NEWS SUMMARIZED

Allowables

Echoing the Rowan & Nichols case, a federal court at San Antonio last week granted the plea of Humble Oil & Refining Company for an increase in allowable in the East Texas field. The writ is temporary and does not restrain the Texas Railroad Commission issuing new orders for the field. The commission, in opposing the suit, pointed out that a hearing has been arranged for the Humble company on August 16. Meanwhile the company has furnished the commission with a formula for fixing allowables in the field which it presents as fair.

Two members of the Texas Railroad Commission (Thompson was absent) late Friday declined to define their probable course of action following the decision at San Antonio. It was said that the hearing set for August 16 will be held as scheduled. Also it was intimated that one out would be closing the field. Meanwhile other operators were undecided as to their course in demanding "their rights" as revealed by the law suits.

Crude Prices

Drastic reductions late last week left Mid-Continent crude oil prices at the lowest levels since September, 1933.

Oklahoma-Kansas crude of 36-36.9 gravity, cut 20 cents a barrel last week, after having been lowered 20 cents last October, was priced on the new schedules at 82 cents a barrel.

The new price for oil in the East Texas field is 90 cents a barrel, down 20 cents along with crudes in other sections of the Mid-Continent, including the Texas Panhandle and West Texas.

Due to revisions in gravity scales and changes of differentials and to varying changes in flat price postings, the reductions of last week ranged from as little as 5 cents a barrel to as much as 32 cents. However, the average reduction apparently was around 20 cents a barrel.

The smaller reductions were principally on the heavier oils, in reflection of the relatively better markets for industrial fuel oils than for gasoline.

The lower Mid-Continent postings were initiated by Sinclair Prairie Oil Marketing Company, which made a blanket 20-cent reduction of prices in Oklahoma, Kansas, Texas, Louisiana, Arkansas, and New Mexico, effective August 10. But the lower Sinclair prices were promptly met in Oklahoma and Kansas by Cities Service Oil Company and several independent refining companies; and a general adoption of lower postings appeared virtually certain when Humble Oil & Refining Company, largest buyer in Texas, met the new Sinclair schedule in several districts and extended downward revisions throughout Texas and into New Mexico.

Harry F. Sinclair, head of the Sinclair companies, explained that the lower crude prices were necessitated by the prevailing relatively low prices of refined products.

Selling of crude oil at less than posted prices also was mentioned as a factor in the lowering of postings. Under-market crude has been available in substantial quantities in recent months in Illinois, Oklahoma, Kansas, and some sections of Texas.

Louisiana

The New Orleans federal grand jury looking into alleged irregularities in Louisiana adjourned again over the week-end without turning in indictments, and it is expected by observers on the ground that plenty will be forthcoming early this week. The inquiry is into various phases of irregularities that can be reached by the federal courts, but continued gathering of investigators who have had experience in oil matters elsewhere indicate that the oil situation currently is the center of interest. Early belief was that the inquiry was altogether concerned with recent excess runs in South Louisiana, but the first indictment involves a transaction in 1936 when Rodessa in North Louisiana was the thorn.

Trust Investigation

September 18 has been set for the beginning of hearings before TNEC on oil. Senator O'Mahoney, who will direct the inquiry as chairman, announced that all branches of the industry will be heard at Washington. Inquiry also will be made on divorce of pipe lines and the senator's personal peeve: moving crude oil out of Wyoming.

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Allowable Picture

Federal court gives Humble increased allowable in East Texas with temporary order . . . Suit is echo of Rowan & Nichols case . . . Company of new formula

Court boosts Humble's East Texas allowables

A preliminary injunction, which will increase its East Texas field allowable by approximately 16,000 barrels per day, was granted the Humble Oil & Refining Company against the Texas Railroad Commission in San Antonio August 10. The injunction hearing was before a three-judge federal court composed of District Judges R. J. McMillan of San Antonio and T. M. Kennerly of Houston and Circuit Court Judge Edward Holmes of New Orleans.

The injunction as set forth carries a proviso that the commission is not restrained from interfering with production in excess of 44 percent in addition to the amount now allowed. In addition, the commission is not restrained from issuing new orders in regard to the field's allowable, provided such orders are not the same or reasonably the same as the one enjoined by the court. Likewise, any new orders must be reasonable.

The commission made several attempts to prevent judgment, having contended that the injunction should be dismissed, on the grounds it would hamper other operators in the field. Likewise, it attempted to show that a hearing had been called for August 16 in Austin, whereby the Humble company's claims for increased production would be heard. All pleas in behalf of the commission were disregarded.

The backwash of the injunction is expected to be felt in the immediate future with several other companies with so-called unbalanced holdings indicating their intentions to file similar suits for increases in allowables.

The Humble Company contended that it owned more than 14 percent of the oil reserve in the East Texas field and that under the present proration plan was allowed only 9 percent of the field's allowable. The company has 14,961 acres under lease and is the owner of 2545 producing oil wells.

The Humble suit was centered around the federal district court judgment recently set down in favor of Rowan and Nichols Oil Company, increasing that concern's allowable on an East Texas lease. The Humble Company contended that in line with those increases it should be given similar concessions.

Several companies holding large acreage in the field, as well as the Humble, have threatened litigation, indicating that the East Texas field's production may be increased by at least 100,000 barrels per day to suit the demands of these concerns.

Kansas well potentials grow under new methods

Kansas oil allowable for August has been set at 164,000 barrels daily by the corporation commission, 1880 barrels per day less than the July allowable. For the same period the Bureau of Mines estimated production at 168,700 barrels daily for the state.

The state's total potential is steadily increasing with the application of depthographs and echometers for gauging well initials. On July 20 the total potential for Kansas was 4,258,174 barrels daily from 19,268 wells. Since that week, four wells in Bemis pool, Ellis County, registered a total initial potential of 210,209 barrels per day. One well in this group rated an initial potential of 74,049 barrels per day.

Humble offers formula for East Texas quotas

In connection with its efforts to induce the Texas Railroad Commission to readjust allowables in the East Texas field, Humble Oil & Refining Company last week offered a recommendation as to how the field should be prorated.

A formula was offered to the commission in response to the commission's request that the company supply certain pertinent information.

One question of the commission was: "What do you think the total allowable for the wells on this lease should be in order that you might recover your fair share of oil in the East Texas field, if the total allowable of the East Texas field remains as it is at this time." The company's answer was: the acre-feet of oil sand in the lease divided by acre-feet of oil sand in the field, multiplied by the field allowable.

Concerning the factor, acre-feet of sand, the company said that "Competent petroleum engineers and geologists will agree fairly well concerning the amount of oil per acre-foot in place in the East Texas field. The percentage of the oil which can be recovered per acre-foot depends upon the manner in which the field is operated. If a proper allowable for the field and ratable production are maintained, a higher rate of recovery per acre-foot could reasonably be expected than if the allowable for the field is excessive, or if excessive concentrated withdrawals are permitted. The opinions of competent petroleum engineers and geologists may vary as to what the actual recovery per acre-foot in the field will be in the future, because of their differences in assumptions as to the conditions under which the field may hereafter be operated.

Regarding the suggested formula, the company stated:

"It is to be understood, however, that it may be entirely proper to apply the pressure factor or to consider the location of the lease on structure. There are other formulae which would probably give substantially the same result. It is our idea that whatever the formula may be, the object should be to prevent reasonably avoidable drainage between competing properties, which drainage is not substantially offset by counter drainage.

"Whatever its legal rights may be, Humble Oil & Refining Company, as a practical matter, would offer no objection to an order applying the formula mentioned above or another formula achieving substantially the same result and, in connection therewith, prescribing a reasonable minimum unit allowable."

A summarization of Humble Oil & Refining Company's oil reserves, as shown by these statements made on the form submitted by the railroad commission, indicates that the company owns approximately 14.3 percent of the total recoverable oil reserves in the East Texas field. This company is currently permitted to produce 9.9 percent of the allowable for the field. These data conform to the allegations in its suit in the federal court in connection with which was heard August 10 at San Antonio Humble's application for preliminary injunction before Judges Homes, McMillan and Kennerly, in which suit Humble seeks preliminary and permanent injunction restraining the commission from enforcing its present order limiting Humble's production to about 9.9 percent of the allowable for the field.

Sales trend in liquefied gases continues upward

Despite uncertain economic conditions, sales of liquefied petroleum gases last year showed another gain, although at a lower rate than in previous years, it was reported last week by the Bureau of Mines in a review of the 1938 situation in that branch of the oil industry.

Total domestic sales of liquefied gases for the year were 165,201,000 gallons, a gain of 17 percent over the 141,400,000 gallons sold in 1937 which, in turn, had a 33 percent increase over the 1936 total of 106,652,000 gallons, the bureau reported.

Exports of liquefied gases continued to decline, as they have for several years, totaling only 825,000 gallons in 1938 compared with 1,984,000 gallons in 1937 and 5,125,000 gallons in 1936.

Domestic sales last year included 54,130,000 gallons of propane against 46,474,000 gallons in 1937; 52,768,000 gallons of butane against 45,399,000 gallons; 56,050,000 gallons of propane-butane mixtures against 46,694,000 gallons, and 2,253,000 gallons of pentane against 2,833,000 gallons.

"A review of 1938 sales of liquefied petroleum gases reveals that the domestic or 'bottled gas' demand took the lead over industrial fuel requirements," the report commented. "Domestic sales of 57,832,000 gallons in 1938 represent 35 percent of total deliveries compared to 29 percent in 1937. It should be noted, however, that this reversal in the market demand is probably of a temporary nature, as 1938 was a year of retarded activity in manufacturing and consequently the requirements for industrial fuel were apparently somewhat below normal, as shown by deliveries of 38,839,000 gallons in 1938, a quantity 10 percent less than the 1937 total of 43,310,000 gallons."

Louisiana Investigation

First indictment by New Orleans grand jury goes back to Rodessa in 1936 . . . Leche, Burford and Weiss named in matter that had attention 3 years ago

Further indication that the federal authorities meant what they said about "hot oil and no whitewashing," was given in the indictment last Monday of former governor Richard W. Leche. Also indicted at the same time was Freeman W. Burford of Dallas, president and principal stockholder of East Texas Refining Company and affiliates.

Seymour Weiss, former hotel barber shop manager and now president of the Roosevelt Hotel where the A.P.I. held its mid-year meeting last May, was also named in the bill.

The federal grand jury now in session in New Orleans, returned the indictment after Leche had been called before the body twice. The first time he refused to waive immunity, and was in the grand jury room only 10 minutes. On the second occasion he was closeted for three hours.

Leche appeared at the federal building in New Orleans a few minutes after the indictment was returned, was fingerprinted and released on $5,000 bond.

Weiss was with him at the time.

Burford was taken into custody in Dallas the next day, after he had attempted to give himself up to arrest on two previous occasions but was refused because the officers had not received copies of the indictment.

According to the 32-page indictment, the alleged offense occurred in the Rodessa field in 1936 when Pelican Oil & Gasoline Company, now dissolved, was operating the Sexton Heirs lease of 13 wells. The indictment said that the East Texas Refiining Company agreed to buy 480,000 barrels of oil from the lease and had Weiss arrange for a special permit to increase the daily allowable to 20,000 barrels of crude from the 200-barrel allowable in force at that time.

Conservation Comissioner Robert S. Maestri (now mayor of New Orleans) was ordered by Leche to issue the special permit, but he refused to grant the request until he had received an opinion on its legality from Attorney General Gaston Porterie, now federal judge at Shreveport.

Maestri was in Hot Springs at the time Porterie's opinion was handed down, and ordered the permit to be granted in a telephone conversation with Dr. J. A. Shaw, head of the minerals division for the department.

The oil was shipped to East Texas and re-sold to Italy, but the Federal Tender Board refused a permit for moving the oil to the coast and Burford entered suit.

Judge Randolph Bryant upheld the board's decision saying the oil had been overproduced without a hearing being called between the operators of the Sexton lease and owners or adjoining property.

In the indictment, it was alleged that Leche and Weiss each received 67 one thousand dollar bills as "commission" in the deal.

This is the first hot oil indictment brought in by the federal grand jury in New Orleans, but the corps of investigators are quoting Leche's own words to news men who gathered outside the grand jury room to question him regarding his appearance: "Business is picking up, isn't it, boys?"

An average of six men a day are being brought before the inquisitorial body, most of them being identified in one way or another with the oil business.

Investigators from the United States attorney's office said they would continue working in South Louisiana until all cases, including alleged forcing of oil operators to buy materials from favored supply houses, have been cleared. Hints of "hot gas" indictments Monday have been given by them.

East Texas prosecutor joins in Louisiana probe

After conferring with Federal Tender Board officials at Kilgore August 9, Richard H. Hill, special assistant to the United States attorney general, who formerly worked in East Texas handling Connally Act litigation, spent the afternoon and night in Tyler making a survey of Connally Act court records and investigations, en route to New Orleans.

He has been ordered there for a week to assist O. John Rogge, chief of the criminal division of the Department of Justice, in investigating Louisiana oil affairs. Hill flew from Los Angeles to Dallas where he was met by a representative of the tender board.

Hill is the only attorney in the Department of Justice still in the service who has first-hand information about hot oil operations in East Texas. He was charged with handling Connally Act litigation from 1935 to 1938.

While Hill said he did not know what cases he would be required to assist with, he admitted that the only case involving Louisiana oil he worked with while in East Texas was that of the East Texas Refining Company. Judge Randolph Bryant in early 1937 declared oil brought to Longview by this company from the Pelican lease in Louisiana and produced under special orders from Robert Maestri and J. A. Shaw to have been produced outside the limits of the conservation commission's powers. Freeman Burford and Governor Richard Leche were indicted in connection with this same case early in the week.

Part of the oil involved in this suit was stored in Louisiana and part in Texas. Of that stored in Louisiana, impounded by court order in the Eastern District of Texas by Judge Bryant, part of it escaped and went to Italy, said Hill. He recommended at the time contempt proceedings be filed against owners of the oil but such proceedings were never filed.

Asked if the federal government would come into Texas to investigate oil matters after Louisiana, Hill said he did not know. He is taking with him to Louisiana, however, files and information on all cases investigated as well as all cases that reached the point of court proceedings.

The investigations included the New Iberia field, but Hill admitted upon inquiry that the grand jury in Louisiana had already received that case.

Oil at the Capitols

Monopoly investigation starts on September 18

Investigation of monopoly conditions in the oil industry will be initiated by the Temporary National Economic Committee September 18, according to a schedule of hearings made public August 10 by Senator Joseph C. O'Mahoney of Wyoming, chairman.

Discussing the plans of the committee for the first "round table" investigation in its series of studies of monopoly in various industries, Senator O'Mahoney said that the statements requested of industry executives as a basis for the survey have already been filed by the American Petroleum Institute group and from others and are now under study.

The hearings will bring to Washington representatives of all the branches of the industry—production, refining, marketing and transportation—he said, and will cover the entire field of oil industry activity. Among the subjects to be discussed, he added, will be the divorce of pipe lines from other activities and the handling of Wyoming crude, which Senator O'Mahoney recently complained the companies planned to pipe beyond the state boundaries for refining despite the fact that refineries within the state were able to handle it, which, he said, represents a type of intrastate activities on which there is no federal law.

I.P.A. counsel suggests "putting house in order"

Demand of the Administration for oil conservation legislation is a logical consequence of the failure of the industry to modernize its practices, it was declared last week by Russell B. Brown, general counsel of the Independent Petroleum Association.

Discussing the legislation in his weekly bulletin to association members, Brown urged the industry immediately to put its house in order, so that when hearings are opened by the Cole subcommittee this fall it will be

able to show there is no necessity for the measure.

Should this bill be enacted, he warned, "the next proposals may be for federal control, federal ownership, expropriation, nationalization."

"Everything of importance this bill proposes could have been accomplished by the industry and by the oil states and may yet be so accomplished," he pointed out. "Leaders everywhere have admitted that. The rank and file in the industry for the most part have assented to that.

"Programs for elimination of waste and for the balance of supply and demand have been drafted, enthusiastically adopted and ignored. Every such program is today an indictment against the industry. We knew what we should do but we did not always do it."

Responsibility for present conditions, Brown charged, falls on "majors and minors" alike. Many of the majors "have long suffered from lack of managerial leadership"; many small producers have fought programs which might have saved them.

However, he added, opportunity to save the industry from government regulation is not entirely lost, but unless the Cole bill is shown to be unnecessary, it may well be followed by other measures leading finally to nationalization.

Oil and gas always can compete with coal

The oil and natural gas industries always will be able to cut prices enough to take customers away from the coal industry, Dr. Charles W. Potter, marketing expert of the Bituminous Coal Division of the Interior Department, testified last week in supporting minimum coal prices proposed by the division, formerly the National Bituminous Coal Commission.

Under cross-examination by representatives of the coal companies, Dr. Potter explained that where natural gas is offered at a price fixed on a percentage below bituminous coal prices, the coal industry cannot meet the competition. "It could not beat it in the past when coal prices were not regulated, and there is no reason to believe that it can be done in the future," he said.

"The oil and gas industry has always been able to cut prices enough to get a particular customer no matter how far the coal industry cut prices to maintain him."

National Stripper Well body to meet October 17

Program and other details of the annual meeting of the National Stripper Well Association are being planned, it is announced by Jake L. Hamon, Dallas, president of the association.

The meeting will be held in Fort Worth, October 17, at the Blackstone Hotel. Last year's convention was in Tulsa and it was attended by producers from all the principal stripper well areas of the United States.

This year's meeting in Fort Worth will precede by one day the opening of the Tenth Annual Meeting of the Independent Petroleum Association of America, October 18, 19 and 20, Blackstone Hotel, Fort Worth.

Crude Price Cut

Humble action following Sinclair lead indicates drastic reduction will be general in all fields

General adoption of drastic reductions in crude oil prices in the Mid-Continent appeared fairly certain as early as Friday of last week, when Humble Oil & Refining Company, largest buyer in Texas and a purchaser also in New Mexico, announced reductions of 5 to 32 cents a barrel effective August 11, following the blanket cut of 20 cents a barrel by Sinclair Oil Marketing Company in Oklahoma, Kansas, Texas, New Mexico, Arkansas, and Louisiana, effective August 10.

The new Sinclair schedule also had been met, meanwhile, by several other companies. Cities Service Oil Company posted reductions for Kansas, Oklahoma, and Texas. Bell General Pipe Line Company, Grandfield, Oklahoma, and Ben Franklin Refining Company, Ardmore, both with postings previously lower than those of major buyers, met the lower schedule August 11. Kanotex Refining Company, Arkansas City, Kansas, posted a schedule identical with the Sinclair Prairie postings for its limited range of gravities. Panhandle Refining Company and LaSalle Petroleum Company, operating refineries at Wichita Falls and Burkburnett, Texas, respectively, met the Sinclair prices on their North Texas purchases. Gratex Refining Company of Graham, Texas, also joined Sinclair in lowering postings.

The schedule of Sinclair Prairie Oil Marketing Company was as much as 17 cents a barrel lower than those of other Mid-Continent purchasers on oil of lower gravity. That concern revised its postings last February and made the prices lower than those of competitors. Its schedule was identical with those of other buyers for oil of 33 gravity and higher. Most of the lower priced oil under the company's schedule is produced in southeastern Kansas.

Major Price Changes

	Penna. (Nat. Tr.)	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
Aug. 11, 1933	Up 10	.....	.....
Aug. 24, 1933	.....	Up 10	.....
Aug. 30, 1933	Up 15	.....	.....
Sept. 6, 1933	Up 10	Up 10	Up 15
Sept. 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
Nov. 6, 1934	Cut 25	.....	.....
Dec. 6, 1934	Cut 25	.....	.....
Jan. 4, 1935	Up 15	.....	.....
Feb. 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
Aug. 29, 1935	.....	.....	Cut *1
Sept. 6, 1935	Up 5	.....	.....
Oct. 29, 1935	Up 15	.....	.....
Nov. 1, 1935	.....	.....	Up *28
Nov. 18, 1935	Up 15	.....	.....
Dec. 6, 1935	.....	.....	Up *9
Jan. 9, 1936	.....	Up 10	.....
Jan. 13, 1936	Up 15	.....	.....
Feb. 26, 1936	.....	.....	Up †5
Dec. 28, 1936	Up 12	.....	.....
Jan. 28, 1937	.....	Up 12	.....
Feb. 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
Sept. 1, 1937	Cut 22	.....	.....
Oct. 12, 1937	Cut 25	.....	.....
Dec. 1, 1937	Cut 15	.....	.....
March 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....
Oct. 11, 1938	.....	Cut 20	.....
Jan. 21, 1939	Up 12	.....	.....
Feb. 2, 1939	Up 8	.....	.....
March 6, 1939	Up 12	.....	.....
August 10, 1939	.....	Cut 20	.....

* Signal Hill 26 gravity.
† Seal Beach 26 gravity.

Prices Lowest Since 1933

The drastic reductions of last week left Mid-Continent crude at the lowest prices for almost six years, or since September, 1933.

From the low levels of the depression, the Mid-Continent postings were advanced several times in June, July, August, and September, 1933, and there were subsequently additional increases of 10 cents in January, 1936, and 12 cents in January, 1937. The prices then remained unchanged during the remainder of 1937 and in the first nine months of 1938. But 36-36.9 gravity Mid-Continent crude was cut 20 cents a barrel October 10-11, 1938, and another 20 cents last week, the two reductions within the past 10 months having aggregated 40 cents a barrel. That combined decline has cancelled all increases since early September, 1933.

Sinclair Explains Reductions

Sinclair Prairie Oil Marketing Company's announcement last week of lower prices for crude followed a statement by Harry F. Sinclair, chairman of the concern's parent company, Consolidated Oil Corporation, that "product prices do not return the cost of raw materials." He made that statement in connection with a report to stockholders that Consolidated Oil Corporation and subsidiaries for the first half of 1939 showed a net loss. (The company was one of only a few to show a loss in the first quarter of this year. It reported a loss of $872,671 for the first six months of 1939, compared with profit of $4,000,341 in the corresponding period of 1938.)

"The statement," said Sinclair, "reflects the unfavorable conditions in the oil industry, that have been growing progressively worse for a year and a half."

At the middle of June, Sinclair had increased gasoline tank wagon prices ½ cent a gallon in 42 states, declaring that the higher product prices were imperative if crude prices were to be maintained. However, there was not a general acquiescence in the increase, and finally, it was effective only on about one half the gallonage affected,

CRUDE OIL PRICE SCHEDULE

MID-CONTINENT GRAVITY SCALE PRICES

(Posted August 10-11, 1939)

(Some fields of Mid-Continent have flat price postings, and are shown separately.)

GRAVITY	[5]Okla.-Kans.		North & W. Central Tex.	East Central Tex.	Texas Panhandle Sweet Oil	Texas Panhandle Sour Oil		West Tex.-N. Mex.	[1]Gulf Coast (Tex.-La.)			[2]Anahuac, Tex. Type	[3]Refugio, Tex. Type	[4]Mirando, Tex. Type	[6]Sweden (South Tex.)
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	*$0.71	.....	.....	*$0.61	*$0.71	*$0.66	.....
20–20.9	.....	.....	.....	.....	.....	.....	.....	.....	.73	.....	.....	.63	.73	.68	.....
21–21.9	.....	.....	.....	.....	.....	.....	.....	.....	.75	.....	.....	.65	.75	.70	.....
22–22.9	.....	.....	.....	.....	.....	.....	.....	.....	.77	.....	.....	.67	.77	.72	.....
23–23.9	.....	.....	.....	*$0.46	.....	.....	.....	*$0.41	.79	.....	.....	.69	.79	.74	.....
24–24.9	.....	.....	*$0.48	.48	.....	.....	.....	.43	.81	.....	.....	.71	.81	.76	.....
25–25.9	$0.38	.....	.50	.50	.....	.....	.....	.45	.83	.....	.....	.73	.83	.78	.....
26–26.9	.43	.....	.52	.52	.....	.....	.....	.47	.85	.....	.....	.75	.85	.80	.....
27–27.9	.48	.....	.54	.54	.....	.....	.....	.49	.87	.....	.....	.77	.87	.82	.....
28–28.9	.53	.....	.56	.56	*$0.52	*$0.47	.....	.51	.89	.....	.....	.79	.89	.84	.....
29–29.9	.58	.....	.58	.58	.54	.49	.....	.53	.91	.....	.....	.81	.91	.86†	.....
30–30.9	.62	.....	.60	.60	.56	.51	.....	.55	.93	.....	.....	.83	.93	.....	*$0.88
31–31.9	.66	.....	.62	.62	.58	.53	.....	.57	.95	.....	.....	.85	.95	.....	.90
32–32.9	.70	.....	.64	.64	.60	.55	.....	.59	.97	.....	.....	.87	.97	.....	.92
33–33.9	.76	.....	.66	.66	.62	.57	.....	.61	.99	.....	.....	.89	.99	.....	.94
34–34.9	.78	.....	.68	.68	.64	.59	.....	.63	1.01	.....	.....	.91	1.01	.....	.96
35–35.9	.80	.....	.70	.70	.66	.61	.....	.65	1.03	.....	.....	.93	1.03	.....	.98
36–36.9	.81	.....	.72	.72	.68	.63	.....	.67	1.05	.....	.....	.95	1.05	.....	1.00
37–37.9	.84	.....	.74	.74	.70	.65	.....	.69	1.07	.....	.....	.97	1.07	.....	1.02
38–38.9	.86	.....	.76	.76	.72	.67	.....	.71	1.09	.....	.....	.99	1.09	.....	1.04
39–39.9	.88	.....	.78	.78	.74	.69	.....	.73	1.11	.....	.....	1.01	1.11	.....	1.06
40 and above	.90	.....	.80	.80	.76	.71	.....	.75	1.13	.....	.....	1.03	1.13	.....	1.08

* Minimum price and applies also to purchases of lower gravity.

† Maximum price and applies also to purchases of higher gravity.

[1] Includes Cotton Lake, Goose Creek Sugar Land, West Columbia, Thompsons, Mykawa, Nome, Amelia, Webster, Clear Lake, and Raccoon Bend (deep sand) fields.

[2] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Liberty, Orange, Pierce Junction, Barbers Hill, Raccoon Bend (shallow sand), and Satsuma fields.

[3] Includes Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

[4] Includes Duval, Jim Hogg, Jim Wells, Webb and Zapata counties, Texas, and Heyser and Placedo fields.

[5] Sinclair Prairie Oil Marketing Company schedule.

[6] Includes high gravity oil at Benavides, Fitzsimmons, Tesoro, Kelsey, and Heyser fields.

and the company was obliged to drop prices back in various states and areas to meet competition.

Market Unstable Lately

Selling of crude oil under the posted prices was mentioned by various observers as probably an important reason for the Mid-Continent reductions.

Illinois was estimated to be putting onto the market 45,000 barrels daily at less than posted prices. Most of the local skimming plants there have been buying under the market. One buyer with pipe line facilities has been taking limited amounts at posted prices and additional oil at below the market.

Mounting crude production in the Illinois Basin, where the Sinclair company is not a buyer, undoubtedly has aggravated the crude market in the Mid-Continent. Competitors of Sinclair Refining Company in the Chicago area have pipe line outlets from the Illinois fields, and the advantage in pipe line tariffs from Southern Illinois to Chicago over rates from the Mid-Continent to Chicago are a factor in the crude oil market.

The market structure in the Mid-Continent has not been stable for several months.

In Southern Oklahoma, local refiners have been buying oil on schedules slightly below the prices of the major companies. The market in the area was thrown out of balance when major concerns with Illinois production withdrew as buyers.

Kansas also has had some crude, estimated at about 7000 barrels daily, going below the market.

A few refiners in the Wichita Falls area, North Texas, also bought on schedules as much as 5 cents a barrel below the major pipe line transporters.

There have been some unconfirmed reports also of some below-posted selling prices in South Texas.

Recent developments have forced more Oklahoma crude to storage. Illinois oil replaced 12,000 barrels early in August. A strike in a refining plant at Toledo is forcing some oil to storage temporarily.

From the stripper well belt to the latest flush area of Illinois, it has been asserted, oil has been selling on a buyer's market.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Texas:		
East Texas	$0.90	8–11–39
Talco	.50	8–11–39
Van	.73	8–11–39
Pecos County	.58	8–11–39
Salt Flat, Darst Creek, Hilbig, Carroll, Clark and Zoboroski	.76	8–11–39
Flour Bluff	.95	8–11–39
Conroe	1.07	8–11–39
Alice	1.00	8–11–39

Louisiana Prices Revised

Standard Oil Company of Louisiana effective August 8 posted a flat price of 80 cents a barrel for crude oil in the Magnolia pool of southern Arkansas. The company previously purchased the oil there on a gravity scale basis, with prices ranging from 66 to 98 cents.

Effective August 1, the Caddo Crude Oil Purchasing Company posted a 5-cent reduction in the price of Lisbon, Louisiana, crude. The new top price for 35 gravity and above is 72 cents, and a 2-cent differential applies for each degree of gravity down to 56 cents for crude of 27 to 27.9 degrees. Inability to market this crude was given as the reason for the reduction by this company, which buys practically all of the allowable production of 3100 barrels daily at Lisbon.

Standard Oil Company of California last week increased its crude posting from 2 to 8 cents a barrel in the Montebello field.

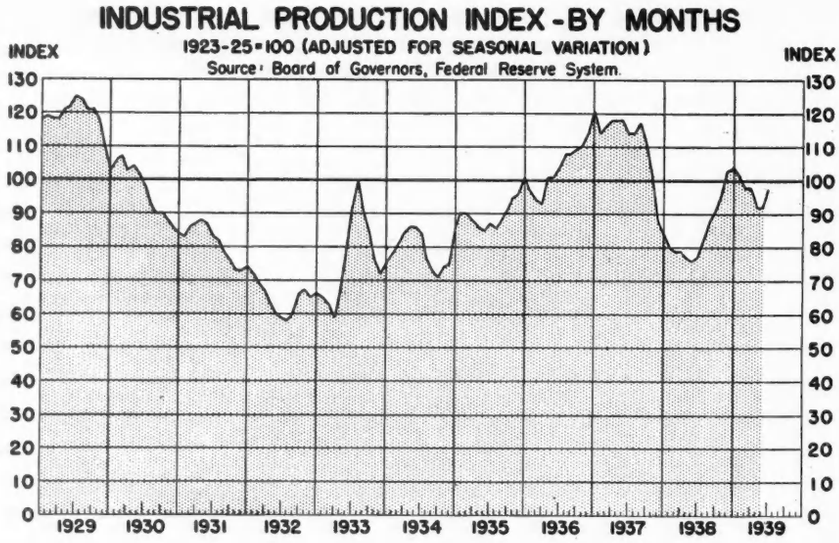
Bureau report shows drop in production in June

Declining for the first time since last October, crude petroleum production in June dropped to a daily average of 3,486,900 barrels from 3,565,800 barrels in May, it was reported August 10 by the United States Bureau of Mines.

Reduced production in Texas accounted for the drop in output, it was disclosed, the 8 days' shutdowns in June bringing the daily average down by 90,000 barrels. Outside of Texas, total production increased, with gains in Illinois, Michigan, Louisiana and Kansas offsetting losses in California and Oklahoma.

New records were established in Illinois and Michigan, the average output for the former increasing from 220,900 barrels in May to 236,100 barrels in June, but with a slight decline in the number of wells brought in.

The bureau's monthly report showed that production in June totaled 104,607,000 barrels, compared with 110,541,000 barrels in May and 94,277,000 barrels in June, 1938, bringing output for the first half of the year to 623,391,000 barrels, a gain of 20,545,000 barrels over the 602,846,000 barrels produced



The oil industry's outlook has been made more promising by the fact that industrial production turned sharply upward in June.

in the same period last year. Daily average production for the six-months' period was 3,444,000 barrels against 3,331,000 barrels in 1938.

Stocks Drop

The decline in production in June, coupled with a material gain in crude runs to stills, was reflected in stocks, from which nearly 5,000,000 barrels were taken during the month, compared with only a small withdrawal in May, the report stated. Total crude stocks on June 30 were virtually at the lowest point since the initial accumulation.

The yield of gasoline in June was 44.5 percent, compared with 44.4 percent in May and 44.3 percent in June, 1938, both of the gains indicated being due to increased cracking.

"The indicated domestic demand for motor fuel in June did not bear out the promise of May, the total of 49,812,000 barrels being only 3 percent above a year ago," the bureau commented. "Exports of motor fuel continued to meet expectations, the total for June being 4,459,000 barrels. The decline in finished inventories (about 4,000,000 barrels) was much less than in June, 1938, with the result that the total on hand June 30, 1939 (74,395,000 barrels), exceeded the comparable total of the preceding year.

"The demand for the three classes of fuel oil continued to run well ahead of last year, and despite the increase in crude throughout, stocks were generally lower on June 30, 1939, than a year ago. Terminal stocks of both distillates and heavy fuels increased materially in June, probably in anticipation of the coming heating season."

Bureau of labor statistics indices placed the price index for petroleum products in June at 52.5 compared with 52.5 in May and 56.3 in June, 1938.

The crude-oil capacity represented in the report was 4,093,000 barrels, giving an operating ratio of 85 percent, compared with 83 percent in May and 77 percent in June of last year.

Details of supply and demand in June, as carried in the report, were as follows; in thousands of barrels: Domestic production: Crude, 104,607; daily average, 3487; natural gasoline, 4095; benzol, 174; total production, 108,876; daily average, 3629.

Imports: Crude in bond, 468; for domestic use, 3196; refined in bond, 1859; for domestic use, 750. Total new supply, all oils, 115,149; daily average, 3838. Decrease in stocks, all oils, 2425.

Demand: Total, 117,574; daily average, 3919.

Exports: Crude, 5831; refined, 10,798.

Domestic demand: Motor fuel, 49,812; kerosene, 3570, gas oil and distillate fuels, 7198; residual fuel oils, 24,783; lubricants, 1902; wax, 70; coke, 578; asphalt, 2834; road oil, 1210; still gas, 5768; miscellaneous, 205; losses, 3015.

Total domestic demand, 100,945; daily average, 3376.

Stocks: Crude, refinable in United States, 273,314; heavy in California, 14,207; natural gasoline, 6749; refined products, 262,289; total, all oils, 556,559; days' supply, 142.

Coastal refiners hold less unsold gasoline

The Gulf Coast Refiners Association, with 10 member companies reporting, stated that unsold stocks of refined products available for marketing are varying but little from week to week. The overall stock position of all products is maintaining levels reported during the past several weeks.

Motor fuel stocks decreased over 200,000 barrels in the week ended August 5. Motor fuel stocks not sold at the end of that week totaled 605,803 barrels, declining to this figure from 841,348 a week before. Aviation gasoline available was reported at 476,578 barrels and high octane blending naphtha at 50,523 barrels. These totals closely approximate totals for the previous week.

Stocks of kerosene not sold total but 18,000 barrels and Diesel oils have been reduced to 4480 barrels. Unsold stocks of two types of gas oil reported in the week of August 5 totaled 130,690 barrels, 94,880 barrels of which was No. 2 gas oil and the remainder No. 4 gas oil. In the fuel ranges, No. 5 fuel totaled 99,610 barrels at the end of last week, and no unsold Bunker C fuel oil was reported. Crude runs for the past week were at the rate of 102,269 barrels a day, or a total of 715,882 barrels for the week.

Survey shows industry had better second quarter

The results of a survey made by the Wall Street Journal indicate that the net profits of the oil industry as a whole, for the first six months of this year will show a decline of 30 or 35 percent from the similar period of 1938.

The survey stressed the improvement from the first quarter of 1939, when profits were down approximately 60 percent as compared to last year, and attributed the improvement to increased demand and better prices.

The report stated that "integrated companies in the Mid-Continent area received the most benefit from better prices, since it was here that subnormal prices had prevailed for more than a year."

East Coast companies were penalized by poor prices, according to the report. Solely producing companies were represented as faring better than they did last year.

The survey warned of market depression because of the 10,000,000 barrels excess gasoline storage, and predicted that the industry would find itself in an uneconomic condition at the end of the heavy consumption season unless runs to stills were curtailed. A parallel was made between the expected situation this fall, and the situation in the fall of 1938, when the topheavy gasoline structure brought pressure on crude prices.

Barnsdall is enlarging Corpus Christi refinery

Barnsdall Refining Corporation is increasing the capacity of its refinery on the Corpus Christi ship channel to nearly 20,000 barrels per day through construction of a new skimming unit. Construction on the project was commenced last week, G. T. Granger, superintendent, announced.

The company is expanding storage facilities at this port by 500,000 barrels, work already under way.

Schuler's Jones sand has produced 8,459,580 barrels

Cumulative production of the Jones (lower Marine) sand in Schuler field, Union County, Arkansas, discovered September 17, 1937, was 8,459,580 barrels to July 13, according to data compiled by the Arkansas Oil & Gas Commission.

Original bottom-hole pressure at subsea depth of 7300 feet in this horizon was 3520 pounds; now it is 2438 pounds, a drop of 1082 pounds since discovery. Cumulative gas production since discovery is placed at 8,009,215 million cubic feet. Average thickness of formation is 50 feet and gravity of the oil is 34 A.P.I.

Total acreage is placed at 3900 acres and allocated acres total 2759 acres. The bottom-hole pressure drop from May 5, 1939, to July 13, 1939, was 2.5 pounds. This horizon has 136 oil wells.

Market Situation

Two extra days' production in Texas sends crude output up . . . Lower refinery runs result in draft on gasoline stocks . . . Gasoline price off

Crude output high but refinery runs lower

Petroleum statistics covering the week ended August 5 reflected a sharp increase in crude oil production, due to the lifting of shutdowns in Texas for the fifth Saturday and fifth Sunday of July.

But the figures of the week were more favorable as concerned refinery operations. Crude runs to stills were reduced 15,000 barrels a day, and a relatively large withdrawal was made from gasoline storage.

Inventories of light fuel oils are nearly 6 percent larger than a year ago, but those of heavy fuels are about that much lower.

United States crude oil production jumped 370,300 barrels in averaging 3,909,400 barrels daily in the week ended August 5, a new all-time record. The sharp increase was due largely to the temporary lifting of week-end shutdowns in Texas, the state's output having averaged 1,743,500 barrels daily, according to the American Petroleum Institute.

Crude runs to stills averaged 3,445,000 barrels a day in the week of August 5. That was 7.2 percent more than in the corresponding week last year.

Stocks of finished and unfinished gasoline in the United States were brought down 1,456,000 barrels daily, to 76,431,000. That was a fairly satisfactory withdrawal, and if similar drafts should be made the rest of August and September, the inventory would be near economic proportions at the end of the summer season.

Stocks of gas oil and distillate fuels, the lighter oils used primarily for heating, were increased 700,000 barrels in the week ended August 5. The supply now held is about 6 percent larger than that on hand at this time last year.

Inventories of residual fuel oils, the heavier oils that serve as fuel in industrial operations, were increased about 450,000 barrels in the week of August 5, but the stocks remained about 6 percent smaller than a year previously.

Stocks of crude oil in the United States were increased by the small amount of 66,000 barrels in the week of July 29, according to the Bureau of Mines. Crude storage now is about 7 percent smaller than a year ago.

Further gasoline sagging features product prices

Prices of refined products late last week were generally about the same as a week before, although an eighth-cent a gallon reduction of minimum quotations on tank cars of gasoline, initiated a week ago, had become more general. Throughout the Mid-Continent and in the Middle Western marketing region, therefore, gasoline now can be bought for an eighth-cent a gallon less than two weeks ago.

Wholesale prices of kerosene and heavy fuel oils have remained generally unchanged. However, Socony-Vacuum Oil Company effective August 10 advanced its prices for No. 2 fuel oil at New York ⅛ cent a gallon to 4 and 3⅞ cents in tank cars and barges, respectively. The same grade was similarly increased to 4⅛ cents in tank cars at Boston and to 4 cents at Providence.

U. S. motor gasoline at Oklahoma refineries ranged last week about as follows: 62 octane and below, 4⅛ to 4⅝ cents a gallon; 63 to 66 octane, 4½ to 4⅞ cents; 67 to 69 octane, 4⅝ to 5⅛ cents; 70 to 72 octane, 5 to 5⅜ cents.

Corresponding prices in the Chicago market were: 3¾ to 4½ cents, 3⅞ to 4½ cents, 4⅛ to 4⅞ cents, and 4½ to 5¼ cents.

In East Texas, 60-62, 400 end point gasoline was priced generally at 4¼ cents a gallon.

Natural Gasoline

Natural gasoline, grade 26-70, was selling in the Mid-Continent markets, f.o.b. refineries at 3 cents a gallon, and sales were reported at the same price, f.o.b. Breckenridge, Texas.

Kerosene prices f.o.b. Oklahoma refineries ranged from 3⅝ to 4¼ cents a gallon for the 41-43 water white grade, and from 3¾ to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3 to 4 cents and 3¼ to 4¼ cents.

In the Chicago market range oil was priced from 3 to 3⅞ cents a gallon. The No. 1 white oil was priced from 3 to 3¾ cents, and No. 1 straw from 2¾ to 3⅜ cents. No. 2 straw was 2¾ to 3¼ cents. No. 3 oil was 2⅝ to 3⅛ cents. No. 5 oils were 65 cents a barrel. The No. 6 oil was quoted at 35 to 45 cents.

Crude runs to stills up sharply on June report

Increasing 79,000 barrels over the May average, crude runs to stills in June had a daily average of 3,490,000 barrels, 361,000 barrels above the average for June, 1938, according to the monthly refinery report of the United States Bureau of Mines.

Imports of foreign crude remained virtually unchanged, with a daily average of 122,000 barrels, or 5000 barrels less than in May, it was stated.

Total receipts at refineries for the month were 104,949,000 barrels, of which 101,285,000 barrels was domestic and 3,664,000 barrels foreign oil.

Crude runs to stills aggregated 104,687,-

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1937						
August 28	[5]3,731,450	3,425,000	309,506,000	66,997,000	112,111,000	
September 25	3,666,300	[3]3,455,000	307,974,000	65,620,000	116,472,000	
1938						
March 19	3,433,550	3,080,000	306,380,000	[1]93,192,000	122,067,000	
July 30	3,316,400	3,240,000	288,514,000	76,864,000	27,573,000	116,721,000
August 27	3,388,500	3,255,000	285,029,000	71,754,000	29,747,000	117,179,000
September 24	3,251,150	3,220,000	280,278,000	68,605,000	31,183,000	119,285,000
October 29	3,237,500	3,145,000	275,824,000	67,590,000	33,690,000	120,029,000
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
November 26	3,260,900	3,295,000	270,563,000	68,628,000	33,749,000	119,885,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,587,000	32,068,000	118,711,000
December 31	3,201,450	3,115,000	273,024,000	71,695,000	29,082,000	115,741,000
1939						
January 28	3,248,250	3,235,000	271,763,000	77,279,000	26,583,000	112,766,000
February 25	3,328,850	3,185,000	271,758,000	84,597,000	23,419,000	110,252,000
March 25	3,382,350	3,225,000	273,915,000	87,561,000	21,487,000	107,551,000
April 22	3,526,700	3,280,000	277,156,000	[8]87,769,000	21,058,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
May 20	3,438,400	3,460,000	277,068,000	84,294,000	26,389,000	109,405,000
May 27	[2]3,585,250	3,405,000	278,289,000	84,152,000	26,992,000	109,386,000
June 10	3,376,950	[3]3,510,000	274,692,000	82,716,000	29,357,000	111,239,000
June 24	3,452,800	3,430,000	272,297,000	81,733,000	30,239,000	111,726,000
July 1	3,463,000	3,480,000	271,567,000	81,102,000	31,230,000	113,388,000
July 8	3,529,800	3,420,000	269,348,000	80,823,000	32,435,000	113,494,000
July 15	3,529,700	3,390,000	[3]268,199,000	79,416,000	33,673,000	114,075,000
July 22	3,583,750	3,395,000	268,447,000	77,960,000	34,366,000	114,035,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5, 1939	[1]3,909,400	3,445,000	.....	76,431,000	35,601,000	114,512,000
August 6, 1938	3,317,850	3,215,000	[4]288,514,000	75,380,000	[8]	[9]
Change in past year	+17.8%	+7.2%	−6.9%	+1.4%	+5.9%	−6.1%

[1] All time peak. [2] Peak for 1939. [3] Lowest for 17 years. [4] Stocks, July 30, 1938.
[5] Peak prior to 1939. [6] Lowest for year.
[7] Prior to April 29, 1939. data did not include stocks at terminals, in transit, etc., except in California.
[8] Available data for year ago include only stocks at refineries, and not at terminals, in transit, etc., except in California. Those stocks on August 6, 1938 totaled 26,978,000 barrels, and comparable stocks on August 5, 1939, totaled 28,571,000 barrels, or 5.9% more.
[9] Available data for year ago include only stocks at refineries, and not at terminals, in transit, etc., except in California. Those stocks on August 6, 1938, totaled 117,170,000 barrels, and comparable stocks on August 5, 1939, totaled 109,959,000 barrels, or 6.1% less.

000 barrels, and fuel and losses were 105,000 barrels.

Stocks of crude held at refineries showed a slight increase, from 51,699,000 barrels May 31 to 51,856,000 barrels June 30, it was said.

Natural gasoline output down, stocks up in June

Natural gasoline production decreased in June, reaching a daily average of 5,733,000 gallons against 5,799,000 gallons in May, but was well ahead of the 5,601,000 gallons reported for June, 1938, it was announced August 10 by the Bureau of Mines.

The chief decreases occurred in Kansas and the Appalachian and Kettleman Hills districts.

Total production for the month was 171,990,000 gallons, against 179,760,000 gallons in May, the bureau reported, bringing the total for the first half or the year to 1,043,700,000 gallons against 1,046,598,000 gallons in 1938, the bureau reported.

Stocks continued to increase during June, holdings at refineries advancing from 119,112,000 to 119,532,000 gallons and at plants and terminals from 141,792,000 to 163,926,000 gallons, it was stated.

Pawnee sale

Tulsa.—Pawnee Indian Agency will receive offers at 2 p.m. August 24 on 17 tracts, 16 in Noble County and 1 in Kay County. This involves a total of 1642 acres.

Crude Production

United States down 339,950 barrels from previous week; well above figure set by Bureau of Mines

United States production of crude oil during the week ended August 12 declined to 3,591,525 barrels daily; off 339,950 barrels from the all-time peak production attained the week before when Texas took advantage of its first open week-end in ten weeks. This was 69,625 barrels above Bureau of Mines' estimate of requirements.

Texas produced 1,389,350 barrels daily as resumption of week-end shut-in regulations cut output 354,150 barrels daily from the preceding week. At this level production was 3875 barrels under conservation quota and 38,750 barrels below the bureau.

California added 12,400 barrels daily to the prior week's average to produce 613,600 barrels daily. At this rate production was 15,300 barrels over the self-imposed proration program and 18,500 barrels above the bureau.

Oklahoma lifted 442,700 barrels daily in gaining 16,425 barrels upon the pace of the preceding week. Conservation quota was outstripped by 14,700 barrels but production was 5400 barrels beneath bureau estimate of economic production.

Lowered Coastal area output brought Louisiana production down 4425 barrels to 266,775 barrels daily, where it was 25,173 barrels above state allocation and 7475 barrels above economic allotment.

Illinois output also slumped; falling 4250 barrels to 282,650 barrels daily, where it was 80,750 barrels over federal forecast of demand.

Kansas yielded 170,825 barrels daily; off 5175 barrels from the week before but 6825 barrels above proration quota and 2125 barrels above bureau allotment.

Osage sale

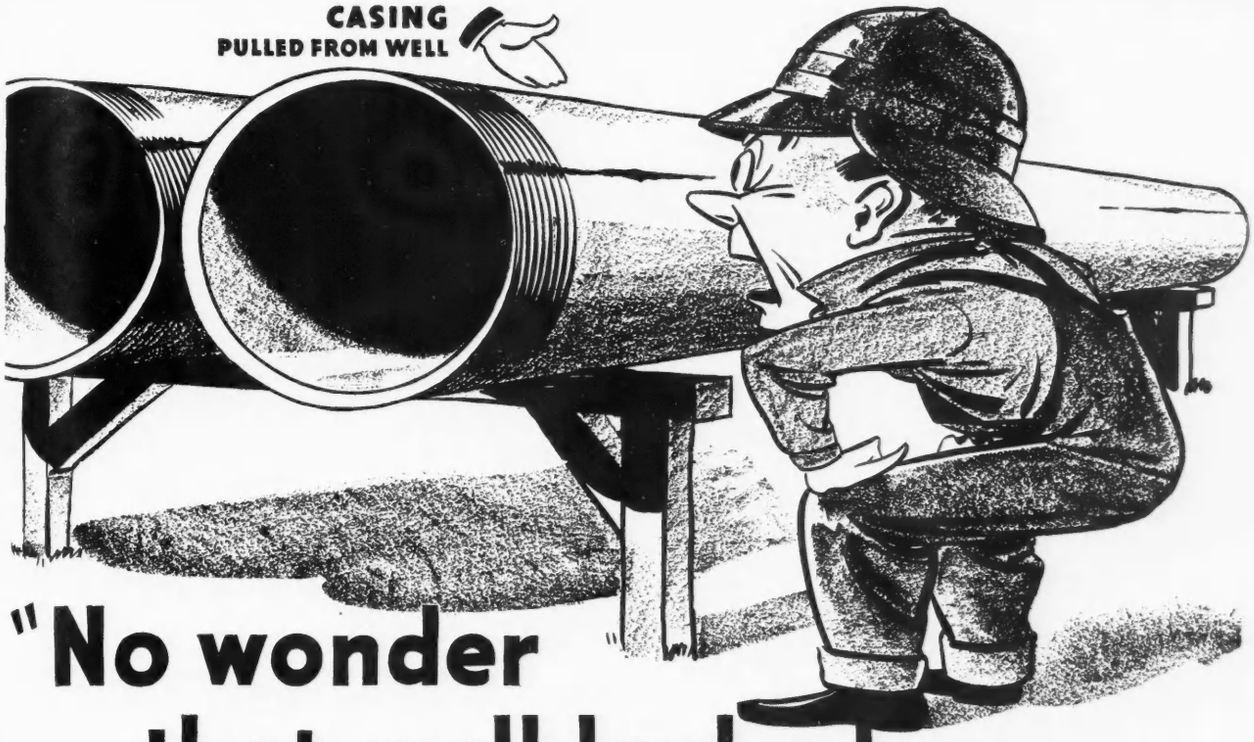
Pawhuska.—Eighty tracts of Osage Indian tribe will be offered at public auction, August 17. These tracts total 12,760 acres with the majority being located west of range 8 east with some 25 tracts east of range 7 east.

United States Crude Oil Production

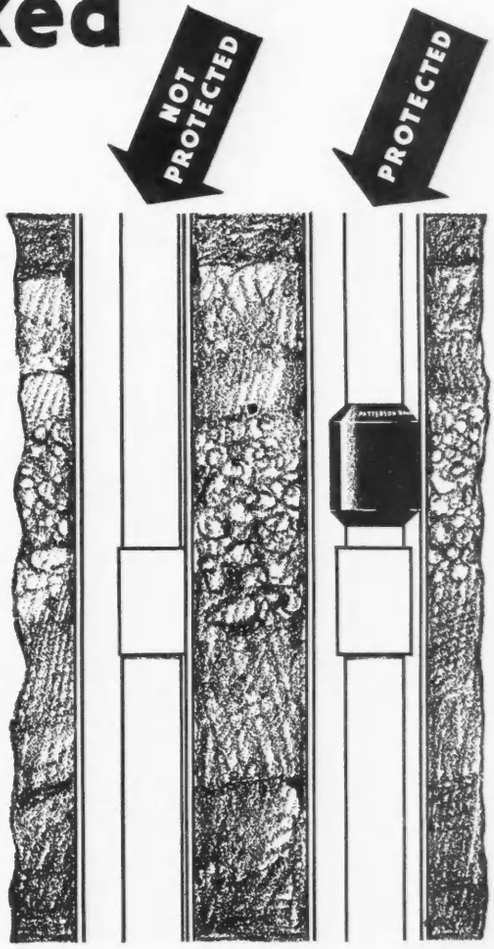
Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (August)	State Allowable in Aug.	BARRELS DAILY FOR WEEK ENDED Aug. 12	Aug. 5
Texas—				
Texas Panhandle			70,750	78,050
North Texas			90,500	94,100
West Central Texas			32,200	32,600
West Texas			257,500	319,100
East Central Texas			101,400	112,200
East Texas Field			378,550	522,300
South Texas			227,900	297,050
Texas Gulf Coast			230,550	288,100
Total Texas	1,428,100	1,393,225*	1,389,350	1,743,500†
CALIFORNIA—				
Long Beach			46,300	45,700
Santa Fe Springs			28,200	28,000
Huntington Beach			26,200	25,100
Dominguez			19,800	18,800
Ventura Avenue			36,000	26,400
Midway-Sunset			46,500	44,400
Kettleman Hills			51,100	51,000
Wilmington			85,100	85,400
Others			274,400	276,400
Total California	595,100	598,300‡	613,600	601,200
OKLAHOMA—				
Oklahoma City			102,725	88,375
Seminole Area			122,700	104,340
Fitts			23,750	23,450
Others			194,025	210,110
Total Oklahoma	448,100	428,000	442,700	426,275
LOUISIANA—				
North Louisiana			66,825	68,000
South Louisiana			199,950	203,200
Total Louisiana	259,300	241,602	266,775	271,200
ILLINOIS—				
New Pools			273,350	277,700
Old Pools			9,300	9,200
Total Illinois	201,900		282,650	286,900
KANSAS—				
Burrton-Haven			10,575	10,325
Russell County			27,000	27,325
Silica			10,075	13,850
Others			123,175	124,500
Total Kansas	168,700	164,000	170,825	176,000
NEW MEXICO	111,000	111,000	110,200	111,500
EASTERN STATES—				
Pennsylvania Grade			75,550	75,400
Others, Eastern			21,800	21,000
Total Eastern States			97,350	96,400
MOUNTAIN STATES—				
Wyoming	77,100		65,650	66,600
Montana	16,400		16,400	16,300
Colorado	3,900		3,950	3,900
Total Mountain States	97,400		86,000	86,800
MICHIGAN	54,200		68,050	68,300
ARKANSAS	51,900	64,991	64,025	63,400
Total United States	3,521,900		3,591,525	3,931,475†

* Daily average, considering Saturday and Sunday shutdowns, water exemptions, and exemption at Rodessa.
† Revised to include reportings delayed by shutdown lift on August 29-30.
‡ Recommendation of Central Committee of California Oil Producers Association.



"No wonder that well leaked like a sieve!"



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Pipe Line News

Vacuum's 10-inch line out of Illinois ready to run

A two-way pipe line outlet will be available this week for the Salem field, most productive Illinois area, as a result of completion of Socony-Vacuum Oil Company's 370-mile 10-inch carrier. Welding work was completed late last week, and back-filling will be finished in time to place the entire line in service by August 15. The carrier extends eastward from Mitchell Station, near Wood River, Illinois, via the Salem-Centralia district to Lima, Ohio, where connection will be made with common-carrier lines that will deliver crude to the company's refineries at Trenton, Michigan, near Detroit, and Buffalo, New York.

Construction work on the nine mainline stations that will give the carrier a rated capacity of 40,000 barrels daily has progressed sufficiently to step up shipment to peak load as the oil becomes available. Patoka Station, Marion County, is the receiving point for Illinois crude with an 11-mile 10-inch extension south to Sandoval where connection is made with a 6-inch and an 8-inch discharge line operated as a part of Magnolia Petroleum Company's gathering system in the Salem district. The latter installed its original lines late last year with deliveries being made to Illinois Pipe Line Company at Sandoval.

Movement of Illinois crude through the 10-inch line westward from Patoka to Mitchell Station has been underway since the latter part of July. Two 80's at Patoka are filled and a third tank is under construction. Two 55's at Mitchell are also filled and a smaller tank is being added. The Patoka-Mitchell oil movement also involves deliveries to Socony-Vacuum Oil Company's refinery at East St. Louis using a 25-mile 6-inch line between Mitchell Station and East St. Louis that was acquired last November by Magnolia Pipe Line Company of Illinois from Sinclair Refining Company's pipe line division. The plant is currently processing about 7000 barrels of crude daily. An additional 12,000 barrels daily will be pumped to Mitchell Station then routed via a common-carrier line to East Chicago, Indiana, plant of Wadhams Oil Company, a Socony-Vacuum Oil Company unit.

The delivery of the first crude to the eastern terminal of the trunk line at Lima will follow shortly after the line is placed in service, as it was tested and filled with oil beyond Reno Station, Indiana, where an 80,000-barrel storage tank is also being filled. This section of the line will handle in excess of 25,000 barrels daily, supplying the plants at Trenton and Buffalo.

J. L. Latimer, vice president and manager of Magnolia Pipe Line Company, Dallas, a Socony-Vacuum Oil Company unit, supervised construction of the new Illinois outlet. Contracts for the laying of the line were awarded to O. C. Whitaker, Inc., T. R. Jones, Inc., and Sheehan Pipe Line Construction Company. These concerns used a maximum of 5 crews. Their peak day on welding amounted to 14 miles while 10 miles per day were frequently attained towards the windup.

Magnolia Petroleum Company will supply the trunk line with controlled and purchased production. The company has 235 oil wells in the Illinois basin that are yielding from 35,000 to 38,500 barrels daily.

Wyoming-Utah pipe line to use only local laborers

Contractors who are to construct the pipe line from Fort Laramie, Wyoming, to Salt Lake City, Utah, for Utah Oil Refining Company of Salt Lake City announce they will use only local labor so far as may be practicable in such work, outside of the limited number of key positions already filled and which require technical knowledge and practical experience.

Both Utah Oil Refining Company and its agent, Stanolind Pipe Line Company of Tulsa, Oklahoma, join with the pipe line contractors in requesting that full publicity be given to this situation in order to avoid needless expense and disappointment to men residing elsewhere who are seeking employment in the construction of this line.

Texas pipe line valuations lowered by tax board

State Tax Commissioner George H. Sheppard has announced final intangible values on Texas pipe lines, upon which the state board will levy the intangible assets tax.

The State Tax Board is composed of Sheppard, ex-officio tax commissioner and comptroller of public accounts; Gerald C. Mann, attorney general; and Tom L. Beauchamp, secretary of state. The total final values amounted to $46,292,780 as compared with $47,615,000 for 1938, or a net decrease of $1,322,220, or 3 percent.

Net income of the pipe line companies decreased 13 percent in 1938 over 1937. The United States Interstate Commerce Commission predicts further decline of 10 percent for 1939, based on the first three months of this year, together with reductions in tariff rates that went into effect generally during November, 1938.

Comparison of Intangible Values of Pipe Lines

	1938	1939
Atlantic Pipe Line Co.	$ 6,000,000	$ 5,244,000
Gulf Refining Co.	3,000,000	3,000,000
Humble Pipe Line Co.	10,200,000	8,959,000
Magnolia Pipe Line Co.	2,700,000	3,000,000
Shell Pipe Line Corp.	3,000,000	3,650,000
Sinclair Refining Co.	4,800,000	5,000,000
Texas-New Mexico P. L. Co.	2,400,000	2,587,000
Texas Pipe Line Co.	2,500,000	2,067,700
American Liberty Pipe Line Co.	275,000	750,000
Arkansas Pipe Line Co.	665,000	488,000
Atlas Pipe Line Co.	000	9,700
Barnsdall Pipe Line Co	25,000	383,100
Crude Oil Pipe Line Co.	100,000	000
Duval Pipe Line Co.	100,000	434,700
Empire Pipe Line Co.	145,000	60,600
Pan American Pipe Line Co.	900,000	1,153,000
Pure Transportation Co	2,150,000	630,600
Pasotex Pipe Line Co.	450,000	315,000
Republic Pipe Line Co.	600,000	978,800
Standish Pipe Line Co.	60,000	50,000
Sun Pipe Line Co.	1,730,000	1,466,300
Texas-Empire Pipe Line Co.	3,500,000	3,500,000
Tidal Pipe Line Co.	875,000	779,500
Toronto Pipe Line Co.	90,000	90,000
Yount-Lee Pipe Line Co.	775,000	786,900
Amsco Pipe Line Co.	200,000	259,400
Bell General Transit Co.	000	94,700
Cardinal Pipe Line Co.	000	5,400
Crown Central Transportation Co.	000	55,400
M-A-R Pipe Line Co.	70,000	74,000
Nueces Pipe Line Co.	000	2,680
Panola Pipe Line Co.	000	9,100
Reagan County Purchasing Co.	15,000	24,000
Shamrock Oil & Gas Co.	000	9,200
Southern Pipe Line Co.	150,000	178,700
Talco Pipe Line Co.	000	64,400
United Oil Pipe Line Co.	140,000	131,900
Total	$47,615,000	$46,292,780

Ask bids on line outlet for Jackson County area

Magnolia Pipe Line Company, Dallas, will seek construction bids this week for the laying of a 72.8-mile 8-inch welded crude line from the West field, near Vanderbilt, Jackson County, Southwest Texas, to Sealy station, Austin County, on its Luling-Beaumont 24,000-barrel daily capacity carrier.

The new unit will have a rated capacity of 10,000 barrels daily, using a booster station on the field end of the line. Construction work is scheduled to begin by September 1, with the completion date set tentatively for October 15.

The line will be insulated and covered with asbestos wrapping as a check on soil conditions between West and Sealy revealed that the pipe will be subject to exterior corrosion.

Magnolia Petroleum Company controls the bulk of the proved acreage in the West field, which has 2 producing sands and centers upon the company's 11,065-acre discovery lease. Small amount of production has been moved by barge, but in recent months the oil has been backed up on the property in anticipation of a pipe line outlet. Two 80,000-barrel steel tanks were erected on the property, and one tank contains 62,800 barrels of crude. Lonnie Glasscock and Humble Oil & Refining Company, only outside participants, are permitted to store oil in the tanks.

Magnolia Pipe Line Company has authorized the erection of an additional 80,000-barrel steel tank at Sealy station.

Line from Richard King to Reynolds pool completed

Southern Pipe Line Company, unit of the Southern Minerals Corporation, has completed a 5½-mile pipe line extension from Richard King area in Nueces County to Reynolds pool of Jim Wells County. The line is constructed of 4½-inch pipe and connects with the Southern Pipe Line's system to the company's terminal at Corpus Christi.

Permission is granted to repressure at La Blanca

McCollum Exploration Company has been granted a permit to repressure the 7800-foot horizon in La Blanca field under an order issued by the Texas Railroad Commission. Gas may be taken from the 7500 foot and 8000 foot sand, processed, and returned to the 7800 foot sand. However, when pressure in the latter sand reaches 2300 pounds, the operation must cease.

WEEK'S DRILLING HIGHLIGHTS

Kansas

Things were popping. Montgomery County got a new Arbuckle lime pool. Gilchrist and Cunningham gas pools were linked. Pools receiving extensions included: St. John, Stafford County; Trapp, Gorham and Coralena, Russell County; the pool in 23-21-7w, Proffitt, and Silica, Rice County; Wilson and Brown, Cowley County; Barnholdt, McPherson County. Between Stratham and Wilkins pools, Ellsworth County, an Arbuckle wildcat showed for a gas well, while another, ½ mile northeast of Geneseo pool, Rice County, picked up an oil showing.

Indiana

An indicated southwest extension to Griffin pool may link it with production in White County, Illinois. The wildcat cored 13 feet of Cypress saturation.

Kentucky

An offset to the discovery well of Spottsville pool, Henderson County, was completed for an initial flow of 21.5 barrels of McClosky oil per hour.

Illinois

Ste. Genevieve formation contributed the first commercial oil producer in Edwards County. A wildcat in Section 29-2s-13w indicated a mile extension for recently discovered production in south Wabash County. McClosky saturation was encountered in an outpost ½ mile south of Barnhill pool, Wayne County.

Comparison of Permits Granted for New Wells

STATE	Week Ending Aug. 12	Total this Mo.	Total this Year	Total this Date Last Year	1938 Year Total
Arkansas	6	10	151	156	247
California	38	54	631	762	1,146
Louisiana	41	41	756	842	1,214
Kansas	34	61	935	987	1,453
Michigan	40	71	848	501	953
N. Mexico*	16	25	.....	.....	.....
Oklahoma	31	77	1,291	1,278	1,978
Texas	184	363	6,602	8,408	12,369
Total	390	702	11,239	12,934	19,360

* Data for New Mexico prior to August not available.

South Louisiana

Two new sands this week brought the total pay zones at Venice, Plaquemines Parish, up to 5. Perkins area, Calcasieu Parish, got a new sand also. Eola, Avoyelles Parish, recipient of several recent extensions, is in line for more, judging from showings in outposts. North Crowley, Acadia Parish, has a new sand on the northwest side. Reserve rating of Villa Platte's Sparta zone was again enhanced.

New Mexico

Eunice Townsite sector of Hardy lime field was extended north by a well that will require 3 immediate offsets.

Texas Gulf Coast

Clodine prospect reported a test coring gas and distillate-odored sands. Cotton Lake prospect has a wildcat swabbing oil sands. A second producer is in line for San Felipe dome, Waller County. Old Ocean, Brazoria County, chalked up a north extension.

Rocky Mountain

A Garland field, Wyoming, well initialed 615 barrels in 2 hours before being cut back to 105 barrels hourly.

West Texas

Two extensions, one for ½ mile, the other for ⅞ mile, shortened the gap between Wasson and Bennett fields. North Cowden, Ector County, was extended ½ mile to give the field a width of 3¾ miles. A Cedar Creek prospect wildcat, Gaines County, has the earmarks of a discovery well.

North Texas

Wilbarger County got a new shallow pool near Fluhman. Halsell pool, Clay County, recorded the second producer. A southeastern Wilbarger County test showed for a flow of 45 barrels hourly. The Archer County sector of K-M-A was extended. A Nocona field outpost is showing for production in Upper Strawn. An offset to the Mankins area deep lime discovery in Archer County is showing for a producer.

California

Possibility of linking Coles Levee and Tupman fields to form one of the world's larger single crude reserves was seen as a result of showing in a Kern County wildcat between the two which cored oil showings above 9432 feet.

Summary of Wells Completed in the United States Week Ending August 12, 1939

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1939	Total this Date 1938
Alabama	....	....	....	....	.....	1	2
Arkansas	6	4	1	1	980	146	142
California	31	27	....	4	19,827	657	774
Colorado	....	....	....	....	.....	15	5
Georgia	....	....	....	....	.....	1	1
Florida	....	....	....	....	.....	....	....
Illinois	76	67	1	8	47,699	2,313†	770
Indiana	1	....	....	1	.....	112	72
Kansas	35	28	....	7	228,169	837†	1,072
Kentucky	20	3	7	10	120	397	468
Louisiana	26	15	4	7	4,917	644	682
Michigan	38	23	1	14	10,955	880	530
Mississippi	1	....	....	1	.....	7	11
Montana	3	3	....	....	244	84	41
Nebraska	....	....	....	....	.....	1	....
New Mexico	7	7	....	....	6,364	383	323
New York	19*	16*	1	2	41	338*	466*
Ohio	27	3	11	13	97	568	589
Oklahoma	46	26	5	15	15,440	1,286†	1,373
Pennsylvania	51*	37*	10	4	96	949*	1,451*
Tennessee	....	....	....	....	.....	....	2
Texas	189	125	5	59	78,336	6,130	8,146
Utah	....	....	....	....	.....	....	2
West Virginia	16	5	7	4	49	315	431
Wyoming	6	6	....	....	777	84	73
Total this week	598	395	53	150	414,111	16,148	17,326
Total last week	535	375	38	122	203,157	15,550	16,932
Total this year	16,148	10,996	1,143	4,009	12,118,956	.....	.....

* Includes water-input wells. † Includes salt water disposal wells.

Oklahoma Fields

Wildcat near Fish flows 360 barrels in six hours. Misener sand well extends East Tuskogee south.

Tulsa. — Three quarters of a mile south of Fish pool, Seminole County, Eagle Oil Company's Ryan 1, NEc SW 6-6n-8e, flowed 360 barrels of oil from Wilcox sand at 4226-4230 feet on a 6-hour test and was shut in for pipe line connection being provided by Stanolind Pipe Line Company.

East Tuskogee pool, Creek County, was extended southward as W. M. Dunn et al's Anthis 1, SE NW SE 34-14n-10e, flowed 65 barrels in 18 hours. Misener sand pay was topped at 3180 feet and drilled five feet. Operations will proceed to Wilcox sand, which produced at Higgins et al's Worley 1, a north offset to the above test, opening a new Wilcox pay for the area by flowing 200 barrels daily from both horizons.

In the same county, Burke-Greis Oil Company et al's Harris 1, SWc NE 30-14n-7e, shot Prue sand at 2901-2906 feet with 40 quarts of explosive and appears to be good for over a million cubic feet of gas daily. This extends gas production three-eighths of a mile west of the company's Vanderslice 1, Prue sand opener south of Stroud. Shut in well pressure was gauged at 1200 pounds.

Sets to Test

Northeast of East Tuskogee pool Vierson Oil & Gas Company's Judeman 1, SW SE NW 24-14n-10e, picked up a show of oil and gas in Glenn sand at 2017 feet and drilled to 2190 feet. Casing was run prior to testing the show.

Western Canadian County, which has no commercial production, drew a deep wildcat test as W. R. Ramsey completed pits at Mansfield 1, C NW NE 16-14n-9w, 5 miles west of Calumet. The 9000-foot test is on a block of 10,000 acres covering a prominent structure, Calumet and West Calumet ridge. The ridge is on a north-south trend paralleling the Nemaha buried granite ridge and lying approximately 30 miles west of it. Johnson-Kemmitz Drilling Company is the contractor.

One mile south of Ramsey pool, Payne County, a second wildcat will attempt to prove a separate structure. Blackwell Oil & Gas Company staked location in SEc 24-18n-1e, only ¾ mile south of E. H. Moore's dry hole.

Poor Showing

A Noble County wildcat was showing poorly at Shell Oil Company's Mosena 1, C W½ W½ SE 9-21-2e, 2 miles east of Sumner. First Wilcox was topped at 4456 feet and a core in second Wilcox at 4519 to 4526 feet had only an odor of oil with poor porosity in the last three feet. Coring from 4526 to 4533 feet produced a bleeding formation with oil stains.

Yorkan Production Company et al's Williams 1, NWc 26-11n-3e, 2 miles northwest of Shawnee pool, Pottawatomie County, missed Earlsboro pay after checking structurally high and when last reported was drilling below 4685 feet.

Gray pool, recently defined on the east, may experience the same on the south edge as J. E. Trigg's Voight 1, NWc 30-6n-5e, topped Calvin sand 50 feet high, and missed Earlsboro sand. Drilling was proceeding below the 3100-foot level. The test is ½ mile south of Alma Oil Company's Johnson 1, which flowed 110 barrels from Earlsboro topped at 2890 feet to extend the Pottawatomie County pool.

A fourth show of oil and gas for Charles Hagerling et al's Kimray 1, SWc NW 36-5n-18w, a mile northwest of Roosevelt, was noted in sandy lime at 1280 to 1286 feet. At 1103 feet in similar formation a show of oil was encountered. Casing was lowered to test the latest.

In Washita County, Continental Oil Company's Proctor 1, C NW 28-10n-20w, 8 miles southeast of Elk City, was drilling below 14,300 feet, only 700 feet from the world's record depth test.

Ramsey announces deep test in Canadian County

Tulsa.—W. R. Ramsey, Oklahoma City, has closed a deal to drill a deep test on a large structure five miles northwest of Calumet, in Canadian County, Oklahoma. Location of Mansfield 1 is NW NE 16-14n-9w, on a large block of leases originally assembled by M. T. Myers.

Ramsey has acquired from Myers over 10,000 acres of leases in Canadian County on the Columet and West Calumet structures. The Calumet structure covers a large part of Township 14 North, Range 9 West, and West Calumet structure is in the west part of Township 13 North, Range 9 West and the eastern part of Township 13 North, Range 10 West. The area was core drilled by Ramsey for a double check of the surface geology.

Location of the Mansfield 1 is a result of extensive geological and geophysical investigation of the area for the last 15 years.

The deep test is scheduled to go to 9000 feet, or the Wilcox sand at a lesser depth, and the contract for the drilling and testing has been let to Johnson-Kemnitz Drilling Company. The drilling operations are to start immediately. The well will make a thorough test of the sands all through the Pennsylvanian formation. The possibilities of these sands cannot be regarded lightly, as Ramsey and The Ohio Oil Company during the last year have completed six wells in the Cement field from the Pennsylvanian formation for a potential of 22,795 barrels per day.

There are seven different known sands in the Pennsylvanian formations that are producing oil and gas at Cement. In the Oklahoma City field there are also a number of different sands in the Pennsylvanian formation which produce oil and gas. Below the Pennsylvanian, the Mississippian may be present.

Oklahoma Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo—		
Magnolia, Paukune 9, nw ne ne 10-5n-9w	827	3372
Ohio, Paukune 8, se sw se 3-5n-9w	1357	3480
Stephens, Farwell 2, sec sw 27-6n-10w	¶9	5727
Cleveland—		
Hall-Briscoe, Mantooth 1, nwc 24-6n-1e	*	6387
Comanche—		
Wichita Oils, Palmer 13, 240 ft n cwl sw ne nw 28-2n-10w	3	466
Creek—		
Beal, McKee 1, se ne ne 29-14n-10e	80	1804
McBee et al, Ary 1A, sec sw 31-16n-7e	*	925
Green, Burton 1, ne sw se 1-17n-9e	10	1900
Willoughby et al, Drew 1, se ne sw 1-17n-9e	*	2433
Adams et al, Helton 2, sw ne ne 12-17n-9e	10	1760
Crosby, Escoe 13, nw se sw 26-18n-8e	20	1315
Mars et al, Noble 2, se nw nw 35-18n-8e	75	2635
Kessler, Washington 1A, se nw ne 19-18n-9e	*	3023
Bryan, Willoughby 1, c e½ n½ 22-18n-9e	50	3129
Swift, Martin 3, sw nw ne 18-18n-10e	75	2045
Jackson, Collins 26, ne ne sw se 8-18n-11e	Abnd.	Lcn.
Cattlett, Fulton 6, nw ne sw 9-18n-12e	20	2103
Big Four, Armstrong 1, sw nw ne 15-19n-7e	*	3435
Grady—		
Nichols, Bushnell 1, nw ne se 7-5n-8w	*	4168
Harper—		
Sinclair Prairie, George 1, nec sw 5-27n-23w	*	7420
Hughes—		
Delaney, Foster 1, nw ne ne 17-5n-10e	*	4613
Jackson—		
Vaughn, Stokes 5, cwl nw se sw 11-1n-20w	70	1350
English et al, Lee 1, ne nwc se 36-2n-19w	*	1605
Lincoln—		
Cooper, Huber 1, nwc se 11-16n-4e	*	3710
Logan—		
Wilcox, Parrish 1, nwc sw 26-16n-1e	*	5273
Okfuskee—		
Shell, Gahagen 5, nw ne nw 11-11n-8e	249	3408
Stekoll, Holmes 3A, ne sw ne 16-11n-11e	25	2670
Oklahoma—		
I. T. I. O., Wilkie-Anderson 4, nw se nw 25-11n-3w	274	4084
Okmulgee—		
Walling, Adams 1, sw ne se 24-16n-11e	¶0.6	240
13 Oil Co., Andy 2, sw swc nw 28-14n-14e	*	1790
Anthony, Barnett 1A, ne ne sw sw 6-14n-15e	25	731
Osage—		
Ohio, 6, se sw se se 3-21n-9e	12	2310
Payne—		
Mid-Continent et al, Brandon 5, sw ne ne 13-18n-1e	9960	4891
Texas, Graham, L. M. 3, c w½ se sw 12-17n-1e	240	4897
Pontotoc—		
Huddleson, Shipley 1, sw sec sw 21-5n-8e	¶0.8	986
Pottawatomie—		
Denver, Schroeder 2, ne se ne 1-6n-4e	250	4205
Smith, Flesher 2, nec sw 3-7n-4e	*	4255
Birkey, Osman 1, nec nw 32-7n-4e	*	4508
Wood, Smith 2, nec nw 36-7n-4e	300	4270
Magnolia, Billington "B" 3, se ne ne 21-7n-5e	200	2785
Ausley, Youts 1A, sw nw sw 28-7n-5e	320	4131
Cooper, Neighbors 2, ne se sw 29-7n-5e	800	4180
Yorkan, Williams 1, se ne ne 6-10n-4e (otd 4440 ft)	294	4450
Seminole—		
Wood et al, Louisa 2, se ne se 22-7n-5e	¶0.1	3140
Hall et al, Tiger 1, ne se se 2-8n-6e	130	4166
Stephens—		
McAllister, Wade 4, se swc ne 11-2s-8w	*	2080
Tulsa—		
Kirchmer, Sparks 1, nw ne sw 18-17n-11e	¶4	2267
Vinsel, Filley 1, nw se nw 2-17n-12e	3	1300

*Failures; †Junked; ¶Million cu. ft. gas.

Kansas Field Developments

Montgomery County wildcat does 100 barrels daily. Ten fields get extensions; two gas pools linked.

Wichita.—Field activity for Kansas during the past week hit a fast pace with 10 pools receiving extensions, an Arbuckle lime pool for Montgomery County, with nearest production 1½ miles, and the joining of Gilchrist and Cunningham gas pools, Pratt County. Numerous wildcats were staked while others were in the testing stage.

Kansas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton—		
Armer et al, Hoffman 1, nwc sw 18-16-11w	527	3217
Butler—		
Hugo, McGinnis 10, c n½ ne ne 9-27-6e	25	2786
Cowley—		
Grallop et al, Clark 1, nwc ne 11-31s-3e	*	3368
Neff et al, Grant 1, swc 18-31s-3e	*	2370
Brewer, Curfman 1, ne nw sw 28-31-4e	90	3365
Texas, Hittle 9, ne nec se 21-31s-4e	2171	3334
Eason et al, Muret 1, sec ne 25-33-3e	*	3328
Ellis—		
Dickey, Carmichael 1, cn½ nw nw 18-11-17w	22,900	3340
Cities Service, Rumsey 11, nw ne se 23-11-17w	67,150	3424
Shell, Rumsey 20, swc ne 23-11-17w	46,110	3399
Darby, Hadley "A" 2, c s½ se se 12-11-18w	74,049	3335
Ellsworth—		
Murfin, Loula 1, nwc se 28-16-10w	640	3301
Graham—		
Continental et al, Clark 1, 110 ft w csl se ne sw 10-9-21w	375	3732
Gray—		
Champlin, Dierks 1, c ne sw 34-28-29w	*	6505
Greenwood—		
Shaffer et al, Souder 7, se nw se 16-23-13e	10	1720
Johnson—		
Kasper, Hall 1, c se se 8-13-25e	*	685
Sagamore, Smith 1, c s½ se 16-14-22e	*	831
McPherson—		
W. Kansas O&R, Union 3, ne sw sw 18-17-1w	929	2690
H. & M. Lagree 2, c w½ ne nw 31-19-1w	299	2984
Helmerich & Payne, Russell "C" 1A, sec ne 23-19-2w (otd 3386 ft)	61	2887
Russell "C" 2, sw se ne 23-19-2w (otd 3389 ft)	244	2974
Wakefield et al, Koehn 1, nec nw 36-19-2w (otd 3399 ft)	8	3060
Rice—		
Continental, Pickerill "A" 3, ne se ne 24-18n-8w	3274	3180
Gulf, Moore 1, c w½ nw nw 31-19-9w	448	3270
Skelly, Bernstorf 1, c s½ se se 22-19-10w	734	3294
Pulse, Johnson 3, sec 31-20-7w	993	3326
Garden et al, Oden 1, sec nw 5-21-7w	939	3358
Russell—		
Stanolind, Booth "B" 2, se nw ne 29-11s-15w	168	3219
Shaffer et al, Shaffer 1, nec sw 9-13-11w	Abnd.	Lcn.
Sinclair Prairie, Rogg 5, c s½ nw se 29-14-13w	946	3164
Cities Service, Eichman "A" 2, ne sw se 12-15-14w	308	3337
Phillips, Maier 1, ne swc ne 15-15-14w	272	3253
Shell, Dumler 6, nec sw 36-15-14w	2728	3340
Stafford—		
Moore, Stewart 1, c n½ se sw 12-24-11w	615	3756
Sinclair Prairie, Krey 11, cwl nw se ne 14-24-11w	1156	3801
Woodson—		
Sifers et al, Myers 1, swc nw 21-25-14e	*	1486

*Failures; †Junked; ¶Million cu. ft. gas.

Lerke and Whorton's Clemmer 1, C SW 21-31s-15e, 1½ miles from nearest oil production in Independence gas pool, Montgomery County, was good for 100 barrels of oil daily from Arbuckle lime at 1537 feet.

Pratt County surged in activity with 6 wildcats staked, 5 surrounding Cunningham gas pool and one east of Gilchrist gas pool. Skelly Oil Company linked the two pools as Royce 1, C SW 9-28n-11w, 1½ miles between the areas on the southwest trend, gauged over 100,000 cubic feet of gas while drilling into Viola lime. Pay was topped at 4256 feet and drilled to 4268 feet with rotary tools. After mud is cleaned from the face of the lime and acid used, the open flow should be increased to make a 10,000,000 gasser.

St. John Extended

Continental Oil Company extended St. John pool a mile northwest as Keller 1, Stafford County, SEc 15-24-13w, filled 3800 feet with oil in 24 hours from Arbuckle lime topped at 4109 feet and drilled to 4116 feet. Seven-inch casing was cemented above the pay at 4110 feet.

S. A. Murphy et al's Tieperman 1, NEc SW 29-21-12w, which promised to extend Mueller pool, was abandoned after several days of testing. It made only 2 to 3 barrels per day.

Trapp, Gorham and Coralena pools, Russell County, were extended as the week closed. A. H. Witt's Speere 1, SWc NE 7-14-14w, ½ mile southwest of Gorham, made a potential of 1310 barrels daily from Lansing-Kansas City lime at 3082-3170 feet. Eight hundred gallons of acid stimulated the flow. Trapp pool was moved ¼ mile north as Anschutz and Haynes' Landon 1, SW NE SE 11-15-14w, rated 64 barrels in 24 hours from Arbuckle lime at 3345 feet. North of Coralena, Gulf Oil Corporation's Rein 1, C S½ SW NE 8-15-13w, in 12 hours filled 1600 feet with oil from Arbuckle lime at 3185-93 feet. Testing looked favorable at Central Petroleum Company's Crisman 1, SW NW NE 20-14-14w, ¾ mile east of Vaughn pool, Russell County. Strong gas showed at 2452 to 2457 feet; 8-inch casing was set at 2723 feet. Lansing-Kansas City lime topped at 3054 feet showed oil, and drilling proceeded to the Arbuckle.

Rice County contributed its share of pool extensions. Wolf Creek Oil Company had a large producer at Bauer 1, CSL NW SW 23-21-7w, a north offset to the recent conglomerate strike of E. J. Shaffer and C. L. Carlock et al that made a potential of 790 barrels. The north offset ran slightly higher than the discovery, and when plugs were drilled at 3386 feet the hole filled with oil in a short time. The well was estimated good for 2000 barrels daily. One location east of the Midway-Arbuckle lime discovery well of Proffitt pool, R. M. Davis' Proffitt 1, C W¼ NW NW 9-20-9w, gauged 110 barrels of oil in four hours after acid treatment in Arbuckle lime at 3225-55 feet. The Silica pool extension test, Central Petroleum Company's Dipple 1, initially completed as an Arbuckle lime well, but later plugged back to Lansing-Kansas City lime for production, made an undetermined amount of oil, cutting 50 percent water on a pumping test. Operations call for squeeze cementing to get an effective water shut-off before acidizing. East of Silica pool, Phoenix Drilling Company's Linville 1, SWc SE 4-20-10w, set 8-inch casing at 2661 feet and drilled to 3165 feet in Lansing-Kansas City lime. In 12 hours the hole filled 400 feet with fluid, one-third being water, which was rapidly exhausing itself. Northeast of the pool, Skelly Oil Company's Bernstorf 1-B, C S½ NW SW 23-19-10w, filled 450 feet with oil in 6 hours after perforating casing in Lansing lime at 3021-31 feet. Drilling operation quit at 3285 feet in saturated Arbuckle lime topped at 3280 feet. Seven-inch casing was run to 3281 feet and potential test was being taken.

Wilson and Brown pools, Cowley County, had minor extensions. Smith, Pryor and Lockhart et al's Wilson 3, CEL SW NW 9-33-6e, 2 locations south of discovery well, cemented casing at 3480 feet. Arbuckle lime pay was cut at 3507 feet and drilled to 3511 feet. Oil rose to the top, and on a potential test through tubing the well made 280 barrels daily. A large producer for Brown pool was near as Gulf Oil Corporation's Raymond 1, NEc SW 33-30-4e, a south offset to the Brown discovery well, topped Arbuckle lime at 3271 feet and drilled to 3277 feet. When penetrated only 2 feet, pressure was sufficient to blow the tools part of the way up the hole, which filled 2500 feet with crude in 25 minutes. Tankage was being erected before taking a potential. The pool was defined on the east as Aladdin Petroleum Company et al's Starlin 1, NEc SW 27-30-4e, had sulphur water at 3353-59 feet in Arbuckle lime.

Fain Drilling Company's Johnson 1, SW NW NE 31-20-5w, ½ mile from Barnholdt pool, McPherson County, flowed 3 barrels per hour natural from Chat, topped at 3281 feet, and drilled to 3359 feet. Operators may swab the formation to increase the flow.

Between Stratham and Wilkins pools, Ellsworth County, C. E. Ash et al's Stratham 1, NEc SW 13-17-10w, made in excess of 2,000,000 cubic feet of gas at 2270-78 feet. Arbuckle lime is being tested.

Wildcat Shows

Herndon Drilling Company's Gray 1, SWc NE 30-18-7w, a wildcat ½ mile northeast of Geneseo pool, Rice County, picked up a show of oil in Lansing-Kansas City lime at 2860-65 feet.

Ten miles southeast of Pawnee Rock pool, Cities Service Oil Company moved in at Roberts 1, C SE 31-21-15w, Pawnee County, the only wildcat for the county.

Jackson County drew its first wildcat in several months as Fred Lanahan et al's moved in derrick for Wischeimer 1, NWc SW 6-8-16e, near Birmingham.

Illinois Developments

First oil producer completed in Edwards County. Extension indicated for south Wabash County pool.

Mattoon, Ill. — Edwards County, where 4 dry holes have been drilled this year and several other wildcats are in various preliminary stages, was added to the ranks of producing counties last week. Kingwood Oil Company's V. V. Johnson 1, SE SE NE 18-3s-11e, started flowing 30 barrels an hour from a sandy lime of the Ste. Genevieve, and on its initial 24-hour run made 700 barrels.

The wildcat, at an elevation of 418 feet, topped the Glen Dean at 2490 feet, the Benoist at 2965 feet, Ste. Genevieve at 3040 feet, and McClosky at 3165 feet. Production is from two sections of pay, the first a six-foot section below 3116 feet and the other section below 3140 feet. Bottom is at 3269 feet. The company staked location for Helm 1, ¾ mile northeast in the NW NW NE 18-3s-14w.

With plug ready to drill for several days, Helmerich & Payne's Hamilton County Land Company 1, NE SW SE 6-4s-7e, Beaver Creek Township, continued one of the basin's mystery tests. Cable tools were on location to drill plug. Casing had been set to 3478 feet after hole had been carried to 3524 feet.

Sections of White and Wabash counties along the Wabash River continued to command interest, with geologists divided in their opinion as to whether the several pools and indicated pools will be linked with the prolific Griffin area of Gibson County, Indiana, into a producing area rivaling the Lake Centralia-Salem pool of Marion County or the somewhat smaller Louden pool of Fayette County.

Ohio Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Ashland County—		
Ol Phelps, Mosher 2	¶	628
Athens County—		
C. H. Bowman, Rogaski 4	¶.70	760
D. T. Orndoff, Keirns 1	¶.09	1608
Speary Oil & Gas Co., Door 2	*	584
Ohio Fuel Gas Co., Kinney 1	*	1754
Cuyahoga County—		
Benedum-Trees, Ford 1	¶2.00	2929
Fairfield County—		
Gas Producing Co. of Ohio, Palmer 1	*	2150
Mat Corbett 2	*	2008
Gallia County—		
Wilford et al, Alva George 21	*	177
Guernsey County—		
Dr. Hartman, Ed Swigert 4	*	1286
Knox County—		
Davis et al, Martin 2	¶.15	2150
Upham Gas Co., Mizer 1	*	2960
Licking County—		
Rarley et al, Ferrell 1	12	763
Shrider & Rubin, Matthews 1	¶3.00	2608
Wehrle Co., Hickey & Crawmer 2	*	3250
Hoover Bros., Pounds 2	*	2590
Lorain County—		
R. E. Cain, Henson 2	*	2359
Medina County—		
Loran Wilt, E. Burnham	¶	499
Meigs County—		
Hovis Oil & Gas Co., Jividen 2	¶.17	3150
Profitt et al, Hoover 1	*	2100
Muskingum County—		
Geer et al, Downs 1	¶.80	3311
Nobel County—		
Yoker Valley O&G Co., Long 1	¶.32	1506
Stark County—		
White et al, Weaver 1	¶.83	4557
Washington County—		
Ed Kline, Tropy 8	10	1628
Hall et al, Fulmer 6	*	1692
Freeze et al, Schramm 5	*	1804
Wayne County—		
Mehowa Oil & Gas Co., Kean 1	75	3009

*Failures; †Junked; ¶Million cu. ft. gas.

Production Test Delayed

A mile east extension to the south Wabash County producing area was indicated by Finston et al's Phillip Hoffman 1, Section 29-2s-13w, which was swabbing some free oil after a shot in the Cypress sand. The casing was damaged by the shot, however, and a production test was delayed. Two miles west and some north of production, Oil Exploration Company's Fred Bosecker 1, NE NE NW 13-2s-14w, had only a slight oil show below 2600 feet.

Shell Oil Company's A. P. Bump 1, SW NE NW 9-2s-13w, a south offset to C. D. Neff's A. P. Bump 1, north of Keensburg, was being watched for confirmation of that producing area. It was coring for the Cypress at about 2400 feet last week, and is one of 5 offsets Shell is obligated to drill in the area. C. D. Neff's A. P. Bump was spudded on NE NE NW 9-2s-13w.

The State Geological survey has named the White County producing area in the vicinity of Nation Oil Company's Belve McIntosh lease the Mill Shoals pool. The third well in this area was indicated as Nation's McIntosh 3, SW SE SW 31-3s-14w, which set casing to test 20 feet of Aux Vases saturation, topped at 3215 feet. Shell Oil Company's J. O. McIntosh 1, NE SW SW 31-3s-8e, was drilling below 3100 feet. Kingwood Oil Company's Tullis 1, C E½ NE NE 29-3s-8e, was making 50 percent water during a test of the Aux Vases at 3341 feet.

A revival of activity in Richland County may follow completion of Pure Oil Company's Homer C. Coen 1, SE SE SE 36-5n-9e, Denver Township. The test, now with derrick up, is 2½ miles northeast of production in the Noble pool, and its successful completion would force drilling of the intervening area. East of Mammoth pool in Decker Township, Skinner et al's Sam Shan 1, Section 27-3n-9e, had derrick up and was awaiting rig.

Promising a ½-mile south extension for the Barnhill pool of Wayne County, A. N. Anding's Corinne Osborne 1, NE NW 2-3s-8e, set casing to McClosky saturation described as good. It was waiting on cement. Southwest another ½ mile, Dee Brothers' Sarah Harris 1, SE NE 3-3s-8e, was coring for the McClosky.

A wildcat failure for Williamson County was J. Curtis Starr's (Star Oil Company's) Shoemaker (Carney Oil Co.) 1, C SW NW 21-9s-4e. It topped the Benoist at 2710 feet, the Fredonia at 2753 feet, St. Louis at 2855 feet, and was plugged at 2890 feet. An electric survey showed only a trace of oil in the Benoist. To hold the balance in wildcats for the county, J. H. Williams et al had derrick up for Smothers 1, 900 feet from the south line and 66 feet from the east line, NE 9-9s-2e.

In Perry County, J. J. Broadus' Roundtree 1, NW SW SE 29-4s-1w, was temporarily shut down after coring a slight show in the Benoist, topped at 1270 feet, but the wildcat will continue to the McClosky. Kingwood Oil Company located Broleman 1, 200 feet from the west line and 330 feet from the south line, SW SE SW 17-5s-1w, as an addition to its wildcat list.

Illinois Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Clark County—		
H. R. Snavely, S. M. Schoffield 1	*	875
Clay County—		
Pure Oil Co., Bissey 1	475	3100
A. C. Stanford 3	454	3081
George L. Travis 3C	178	3063
Crawford County—		
Snavely et al, Hastettler 1	*	1400
Edwards County—		
Kingwood Oil Co., Johnson 1	720	3270
Fayette County—		
Whisenant et al, Lilly 13	250	1581
Shell, Van Beuning 1	40	1589
Carter Oil Co., Hopper 2	180	1496
Emery Hopper 2	300	1573
Wm. R. Ireland 6	770	1576
Wm. R. Ireland 7	1175	1531
Wm. Ireland 8	825	1574
Rosa E. Workman 3	205	1599
E. Marshall 2	175	1591
Mamie Tucker 1	145	1561
Oma Ferguson 4	125	1535
Thomas Mills 7	760	1541
Catherine Cline 2	35	1461
K. Stubblefield 2	220	1566
Lewis Hackert 5	600	1547
Jack Smith 2	60	1478
Thomas Mills 6	475	1535
J. T. Wright 3	54	1640
J. T. Wright 4	190	1615
J. T. Wright 5	216	1616
J. B. Drees 4	318	1504
Nelson Logue 2	60	1510
Alfred Dunaway 2	780	1569
Clara McCann 2	220	1489
John Dial 4	474	1577
John Dial 5	504	1569
Oils Inc., Blurton 9	200	1489
Paul Doran, Goetting 7	135	1593
Jefferson County—		
Carter Oil Co., Breeze 2	168	1929
Macoupin County—		
American Petroleum Corp., Simmermaker 1	¶.30	444
Madison County—		
Bill Morgan et al, Niggli 1	*	1092
Marion County—		
Magnolia, J. H. Young 40	480	1866
J. H. Young 41	1321	2040
J. H. Young 44	1440	2044
W. B. Young 19	172	2030
W. B. Young 20	567	2030
W. B. Young 21	177	2006
D. A. Shanafelt 22	786	2085
J. H. Young 42	2500	2035
Shell, Young 5A	510	2058
Young 10	1244	2052
E. J. Farthing 6A	3000	2014
S. S. Bank 2A	200	2058
Salem State Bank 4A	440	1860
Kingwood Oil Co., Fitzsimmons 1	*	2230
Texas Co., N. Young 14	679	2011
N. Young 15	420	2031
N. Young 17	175	2038
N. Young 18	210	2041
McCollum 10	2520	2059
R. Friedrich 4A	196	1894
R. Shanafelt 7	1057	2018
R. Shanafelt 6	2030	2012
R. Shanafelt 8	1582	2029
W. C. McBride, Inc., N. L. Lee 7	1000	1855
N. L. Lee 8	5581	2031
N. L. Lee 9	816	1823
Ohio Oil Co., Young 6	400	1900
Paul Rossi, Brooks 4	888	1864
Harvey, Salem Building and Loan 2	175	2180
Moultrie County—		
George Anderson, Ullrich 1	*	1773
Saline County—		
Coastal Producers, Inc., Choisser 1	*	2142
T. D. Haypenny, M. W. Swinney 1	*	2784
Wayne County—		
Pure Oil Co., Hornbuckle 1	64	3097
Stella Stum 1	313	3072
D. Davis, Sprague 2	2352	3268
Carlson 2	256	3265
Roche & Voyles, Sprague 1	162	3267
Illinois-Mid Continent Oil Co., Emma Wilson 1	2500	3421
Williamson County—		
J. Curtis Starr, Shoemaker 1	*	2890

*Failures; †Junked; ¶Million cu. ft. gas.

Indiana Activities

Cypress sand saturation cored in Griffin outpost. State is considering leasing Wabash River bed.

Evansville, Ind.—An important southwest extension to Griffin pool of Gibson County was indicated when Somers & Eagan's Keck 1, NE NE NE 34-2s-14w, Bethel Township, Posey County, just across the Gibson County line, cored 13 feet of Cypress saturation topped at 2493 feet.

Successful completion of this outpost would give additional weight to opinion that the Griffin area will be linked to production in White County, Illinois. Keck 1 lies between Continental Oil Company's Bozeman Land Company 1, southernmost producer in the Griffin pool, and J. W. Pearson et al's T. E. Boultinghouse 1, Phillips Township, White County, Illinois. A half mile southeast of Keck 1, H. G. Lewis, Jr.'s Fanny Hill 1, NE NW SE 35-3s-14w, Bethel Township, Posey County, was drilling ahead to the McClosky after coring slight saturation in the Cypress.

South of the Griffin pool far enough from production to gain wildcat classification, W. F. Lacy et al were moving in materials for Julian 1, C NE NW SE 26-3s-14w, Gibson County. Longhorn Oil Company's McCarthy 1, C NW SE NW 13-2s-11w, was Gibson County's other wildcat start.

Fred Hartman and M. B. Hughes' Edith White 1, SW SW NW 22-2n-7w, Veale Township, Daviess County, encountered a gas show at 400 feet which operators estimated capable of making 500,000 cubic feet a day. The gas was being cased off, and the wildcat will be carried to the McClosky, expected at 1350 feet.

Four other wildcats are listed in this week first reports, bringing the week's total to seven. Richard Young's C. McLinn 1, Township 1n-12w, Decker Township, Knox County, had derrick up; Ivan Montgomery's C. C. Salmon 1, 325 feet from the south line and 500 feet from the east line, SW SW 2-2n-3w, Lawrence County, location; Ray Ryan & Morgan Brown's No Name 1, C SE SW 30-7s-14w, Posey County, location, and Fred Eastman's S. Vandeventer 1, 300 feet from the south line and 330 feet from the west line, SE SW 21-21n-3e, Tipton County, location.

Governor M. Clifford Townsend revealed that the state, on receiving attractive offers from operators, was considering leasing sections of the Wabash River bed for development. While plans have not been finally approved, the governor indicated that bids would be received for lease rights on various sections, with the state retaining the usual royalty rights. He said there was no doubt that Indiana owns the Wabash River from the low waterline west to the stream's center, where Illinois ownership would begin. At present, the most attractive portion of the river bed is in Posey and Gibson counties, where the river appears to run through the Griffin pool.

Indiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Gibson County—		
Burr Lambert, E. L. Kries 1.....	*	2962

*Failures; †Junked; ¶Million cu. ft. gas.

West Virginia Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Cabel County—		
Merritts Creek Gas Co., Robinson 1	¶.13	2955
Calhoun County—		
Hope Nat. Gas Co., Francis 7843..	¶.93	2034
Clay County—		
Virginian G. & O. Corp., Brown, Swann et al 48	15	1762
Doddridge County—		
Garrett, Jr., Gainer 1	15	2251
Gilmer County—		
Old Field Fork O&G Co., Donlan 1	¶.10	1690
Kanawha County—		
United Carbon Co., Stater 1.....	¶19.30	5273
Columbia Carbon Co., Tignor & Jordan 1	7	1275
Lewis County—		
Pittsburgh & W. Va. Gas Co., Waugh 7681	*	1740
Pleasants County—		
Cox Farm Oil Co., Cox 3.....	2	1879
Rae Oil Co., Brocks 3.....	*	1844
Ritchie County—		
A. J. Scott, Lemon 1	¶.35	1794
Hartman et al, Jackson 1.....	*	2102
Roane County—		
Curtis O&G Co., Miller 1	10	1617
Reed et al, Romine 1	*	1775
Wayne County—		
Owens, Libby, Owens, Belcher 1..	¶.07	3212
Wetzel County—		
Manufacturers L. & H. Co., Estep 1	¶5.85	2238

*Failures; †Junked; ¶Million cu. ft. gas.

Kentucky Fields

McLean County test near Island finds McClosky dry. Spottsville field discovery offset makes producer.

Owensboro, Ky.—W. E. Hupp et al's Nancy Almon 1, ¾ mile southeast of Island, McLean County, was abandoned at 2117 feet after passing through a dry McClosky. The wildcat was on a communitized lease in which J. R. Mace et al, Ashland Refining Company and Chester Oil Company were also interested.

In this county, Lucky "13" Oil Company's T. S. Conrad 6, 1800 feet from the east line and 2700 feet from the north line of Section 3-L-28, became a new wildcat listing when it started deepening from the Bethal at 1626 feet. It was drilling at 1680 feet at last report.

Smith & Toomes' O. H. Parker 1, near Wrightsburg in Webster County, was drilling with cable tools at 1200 feet. The wildcat is just above the McClosky, where H. H. Schwartz's Traylor-Frissee 1 found some McClosky saturation at 1231 feet. Traylor-Frissee 1, across the Green River in McLean County from the Parker test, was abandoned a week ago when it was unable to shut off formation water.

Offsetting the Spottsville pool discovery, Henderson County, Magnolia Petroleum Company's Sam Green 2 was completed in the McClosky lime and started at 21.5 barrels an hour. Ralston & Sales' Annie Stewart 2, in this area and close to the Spottsville village limits, was drilling at 2000 feet. The first hole on this tract was lost when operators were unable to fish out lost tools.

In the Flat Creek section of Henderson County, Imperial Oil & Gas Products Company's Sam Bunch 1 was abandoned at 2279 feet after being taken through the lower breaks of the McClosky. The county's sole wildcat start was Belmont Quadrangle Drilling Corporation's W. M. Watkins 1, 1800 feet from the north line and 1300 feet from the east line of Section 24-P-24. It was rigging up rotary.

Sulphur water in the McClosky brought abandonment at 1415 feet for J. C. Preston's Jesse Kelly 1, 2 miles northeast of Yelvington, Daviess County.

Four other Kentucky wildcats were started during the week, 3 of them in Breckenridge County. Donald Coleback's Joe Moorman 5, 600 feet from the west line and 300 feet from the south line of Section 24-O-36, was drilling below 400 feet after topping the Vienna at 8 feet, the Tar Springs at 12 feet and the Glen Dean at 90 feet. McDonough & Mecca Oil Company's

Kentucky Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Butler County—		
Breslin et al, Harper 7.....	*	188
Daviess County—		
Miller, Morgan 4	100	1150
Hupp et al, Gregory 1	*	1990
Arrows Dr. Co., Tyler 2.....	*	1874
J. C. Preston, Kelly 1.....	*	1415
Floyd County—		
Kentucky-W. Va. Gas Co., Damron 542	¶.12	2671
Harris O&G Co., Perkins.....	¶.46	3051
Hancock County—		
McDonough & Co., Harris 2.....	*	935
Lincoln Pet. Co., Burnett 1.....	*	725
Henderson County—		
Imperial O&G Products Co., Bunch	*	2279
Knott County—		
E. C. Ware, Napier 1.....	¶	....
McLean County—		
Hupp et al, Almon 1	*	2117
Magoffin County—		
Rough River Corp., Adams 4.....	*	1200
Martin County—		
Warfield Nat. Gas Co., Hardin 4835	¶.16	2746
L. W. Preston 4841	¶.73	2516
M. Cassell 4843	¶.30	2598
Meade County—		
Mace et al, Hardaway 1.....	*	1182
Ohio County—		
Neal et al, Mattingly 7.....	10	506
Ohio Oil Co., Kirk 26.....	*	370
Pike County—		
United Carbon Co., Republic Steel 790	¶.40	4082
Powell County—		
Hooks Bros., Baker 2	10	840

*Failures; †Junked; ¶Million cu. ft. gas.

Frank Dean 1, 1600 feet from the west line and 3300 feet from the south line of Section 19-O-35, was drilling, and Lion Oil & Refining Company's Fannie McCoy 1, 2700 feet from the north line and 400 feet from the east line of Section 16-P-38, was spudded.

New York Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Steuben County—		
New Penn Development Co., and Cunningham Natural Gas Co., E. Walrath 1	¶4.20	4165
New York State Natural Gas Co., A. Whiting 1	*	4090
Hanley & Bird, Lloyd Hall 1	*	3862
Allegany County—		
A. D. Reeland et al, South Penn Oil Co. farm, Genesee	3	1360
Bradford Prod. Corp., Willetts farm, Genesee	5	1414
Bradford Prod. Corp., Willetts farm, Genesee	6	1420
Jacob Trinkle Est., Hill farm, Genesee	2	1329
Hughes Bros., Taft farm, Genesee	4	1365
Sloan & Zook, McDivitt farm, Volivar	2	1325
Sloan & Zook, McDivitt farm, Volivar	3	1334
Tress Oil Co. No. 2, Northrup farm, Bolivar	4	1425
Jordan & Welch, Peterson farm, Wirt	5	1370
Cam Oil Co., Peavy farm, Genesee	3	1358
Max Andrews, Burdick farm, Wirt	4	1342
Allegany: Water Intake Wells		
Ada M. Gray, Smith & Gray farm, Genesee	...	1384
Karl-Weller Oil Co., J. N. Karl farm, Genesee	...	1332
Cam Oil Co., Peavy farm, Genesee	...	1349
George Oil Co., Rufus Scott farm, Alma	...	1370
Forest Oil Co., Ackerman farm, Bolivar	...	1410

Pennsylvania Completions

Bradford District		
N. V. V. Franchot, Mgr. Trustee, Rounds	45	....
Mix Creek Oil Co., Fee	2	....
Brink & Brink, 268 Bingham	2	....
Smith Newton Oil Co.,Lincoln	2	....
T. H. Givan, Cummings	2	....
Duke Producing Co., Duke	1	....
Tapp, Gallets & Buffington, Trs., Fee	15	....
McCaffery & Krampf, McCaffery	½	....
Forest Oil Corp., 3 wells	3	....
Forest Petroleum Corp., 2 wells	2	....
Niagara Oil Corp., 3 wells	3	....
Bradford Transit Co., 10 wells	10	....
Bradford: Water Intake Wells		
Grant & Mohan Oil Co., No. 6, 486-7 Bing	...	....
Forest Oil Corp., 2 wells	...	....
Forest Petroleum Corp., 2 wells	...	....
Niagara Oil Corp., 5 wells	...	....
Butler-Armstrong District		
Lester C. Hamilton, J. F. Graham	½	....
Willis M. Ruby, J. Snyder	1	....
Middle District		
Franklin Trust Co., J. M. Regal	1½	....
I. Dana Kahle, J. M. Nickle	1	....
S. M. Beighea, G. W. Berringer	1	....
Case, Pomeroy, Lot 80	2	....
Commercial Lumber Co., American	1	....
Middle District: Water Intake Well		
Cities Service Oil Co., Hamilton	....	....
New York-Pennsylvania: Gas Field		
Penn York Gas Corp., William Cobb	¶	....
Miscellaneous		
Allegheny County—		
Marsh Baumgartel et al, Baumgartel 1	¶.34	700
Armstrong County—		
John Wray et al, S. Yockey 1	¶.52	1172
Fayette County—		
Eberly et al, A. Manyak 2	¶.20	1212
Greensboro Gas Co., Hillen 1	¶	2595
Greene County—		
Equitable Gas Co., Mrs. Sarah Pipes 1	¶.34	2944
Indiana County—		
T. W. Phillips Gas & Oil Co., R. & P. Coal Co. 3	*	3492
Sarah Lewis 1	*	3648
Washington County—		
Cannonsburg Iron & Steel Co., W. G. Ross 1	¶	2344
Clarion County—		
Apollo Gas Co., E. L. Brinker 729	¶.37	1061
Greene County—		
Equitable Gas Co., A. Fordyce 2735	¶.41	2853
Indiana County—		
T. W. Phillips Gas & Oil Co., A. J. Steart 1	*	3491
Potter County—		
Sylvania Corp., Dickerson 1	¶15.29	4810

*Failures; †Junked; ¶Million cu. ft. gas.

West Texas Fields

Operations resumed on Cedar Lake prospect wildcat. Gap between Bennett and Wasson fields shortened.

Midland, Texas.— Operations were resumed late last week on Stanolind Oil & Gas Company's Rayner 1, promising wildcat on the Cedar Lake geophysical prospect in Northeastern Gaines County, after dry gas passed up in the Yates and upper lime necessitated the running of a string of pipe. Seven-inch was cemented at 4550 feet, with the hole bottomed at 4564 feet, as a precaution against blowouts while coring for the Permian oil horizon which is due within the next 300 feet. The wildcat has all the earmarks of uncovering a new oil field which will be the most easterly in the upper region of the Permian Basin and on a separate trend.

The gap between Bennett field and the Wasson area was narrowed to a short interval when one outpost registered a large initial yield while the other key well was showing for a producer. Mid-Continent Petroleum Corporation's Comer 1, ½ mile south of production in the former area, earned an initial rating of 2132 barrels of 34-gravity oil with gas/oil ratio of 960 feet per barrel, after using 5000 gallons of acid in broken pay at 4990-5205 feet. Aloco Oil Company's Wilder-Saltmount 1, NWc Section 804, pushed the Wasson field ⅞ mile toward Bennett in logging ample saturation to make a well after coring to 4175 feet. It was awaiting production test following treatment with 1500 gallons of acid.

North Cowden Widened

An extension of ½ mile east given North Cowden field, Ector County, by Tide Water Associated Oil Company and Edson Petroleum Company's Roberts 1, SWc NE PSL Section 22, Block A, increases the width of this second most important field in the county to a maximum of 3¾ miles. The outpost flowed 815 barrels of oil through tubing and casing on proration gauge after a 480-quart nitro shot at 4270-4450 feet. Top of saturation was logged at 4390 feet, with an elevation of 3046 feet. First Yates was called at 3030 feet, while brown lime and solid lime markers were recorded at 3910 feet and 4105 feet, respectively, indicating a normal dip that may permit further widening of the field. The partnership purchased the 160-acre lease last May for a bonus of $250 per acre, including $50 per acre cash.

York & Harper, Incorporated and The Sloan & Zook Company's Foster 1-D, SW NW NE T&P Section 8, Block 42, near the northeast edge of Foster field, Ector County, failed to develop free oil in drilling regular pay at 4223-45 feet and 4265-82 feet. A small volume of water appeared at 4405 feet, and at 4562 feet the well tested ½ bailer of oil per hour. It was deepened to 4637 feet, resulting in an increase in water. The hole will be plugged back for a nitro shot.

In Goldsmith field, Gulf Oil Corporation recorded 5 flowing wells in the 4200-foot lime the past week, and has

West Central Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County—		
Allman et al, Moore 1	*	1630
G. Eakin et al, Williams 1	*	1101
Hamer et al, Kuteman 2	20	1218
Callahan County—		
Ungren & Frazier, Snyder 1	*	1170
Johnson County (Wildcat)—		
20th Century Oil Co., Davis 1	*	2186
Shackelford County—		
Baker & Daniels, Davis 10	5	1626
Owens-Snebold Oil Corp., McCown 2	3650	3191
W. H. McKeever 2	1550	3193
Shackelford County (Wildcat)—		
Roeser-Pendleton & Continental, Cook 2-A-89	¶5	1469

*Failures; †Junked; ¶Million cu. ft. gas.

West Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Crane County (Dune)—		
Magnolia, University 4, sec 6	58	3361
Crockett County (Crockett)—		
Gilcrease Oil Co., University-Humble 6-13	43	1455
Ector County (Foster)—		
Landreth Prod. Corp., Johnson 2-C	190	4260
Stanolind, Johnson 10	212	4197
York-Harper & Sloan-Zook Co., Foster 1-C	1051	4330
Ector County (Goldsmith)—		
Gulf, Goldsmith 207	2300	4199
Goldsmith 208	1606	4187
Goldsmith 209	1932	4212
Goldsmith 210	516	4195
Goldsmith 211	2536	4212
Ector County (Jordan)—		
Cosden, University 2-C	958	3680
Ector County (North Cowden)—		
Stanolind, T. B. Roberts 16	857	4420
Tide Water Associated-Edson Pet. Co., Roberts 1	815	4450
Gaines County (Wasson)—		
A. G. Carter et al, Moore 4, sec 45	1189	5060
Howard County—		
Sun, Snyder 6	110	2857
Jones County—		
Dennis et al, Wooten 1-a	*	1765
Bert Fields-Carey King, **Barnard** 1	3720	3255
Humphrey 6-B	3678	3260
Gregg Oil Co. et al, Appling 2-B	*	2667
W. B. Omohundro et al, **Street-**Gumm 2	60	1882
Ungren-Frazier et al, Culwell 6	2400	3248
Jones County (Wildcat)—		
Fain-McGaha, Harris 1	*	2905
Pecos County (Pecos Valley)—		
Cain et al, Lehn-Texaco 1	44	1722
Pecos County (Tobarg)—		
Marvin-Henderson Oil Co., Tippett-Conoco 8-C	41	404
Reeves County (Wildcat)—		
Baker et al, Grider 1	*	450
Tom Green County (Wildcat)—		
Southern Cross Oil Co., Upton 1	*	5636
Ward County—		
Sinclair Prairie, Sealy-Magnolia 6.	480	2979
Superior Oil Corp., Smith-Pure 11	319	2376
Western Well Service Corp., Lackland 9, sec 6	97	2085
Westexas Oil & Roy. Co., **Universeity** 1-D	*	2774
Winkler County (Kermit)—		
Magnolia, Walton 233	254	3285
Winkler County (Keystone)—		
R. E. Harding-C. W. Morgan, Jenkins-Gulf 2	350	3450
Hal Peck-Croft & Richardson, Keystone-Sun 1	340	3464
Yoakum County (Bennett)—		
Mabee et al, Willard 7	1877	5230
Shell, Hodges 4	1515	5236
T. P. Coal & Oil Co., Bennett 22	1218	5220
Yoakum County (Wasson)—		
Denver Prod. & Ref. Co., Whittenburg 7-A	1098	5127
Helmerich & Payne, Coffield-Ohio 2	530	5105
Humble, H. O. Wooten 14	894	5145
Shell, Baumgart 4-A	972	5167
Baumgart 7-C	1032	5157
Wynne, Tr., Clawater-Amerada 2	1182	5215

*Failures; †Junked; ¶Million cu. ft. gas.

6 rigs running on its Goldsmith leasehold to maintain the volume of work average for more than a year. The company holds a term lease, which is an exception to the rule in the district, and for that reason is pushing development.

The 20-cent price reduction made August 10 by Sinclair Prairie Oil Marketing Company was largely confined to controlled and purchased oil and Ward and Winkler counties, amounting to about 2500 barrels daily, exclusive of receipts from majors. The company may lose some of its outside connections unless the cut becomes general.

Sinclair Prairie Oil Company contracted to start a test within 6 months after acceptance of title in acquiring a 11,400-acre wildcat block in the northwest corner of Mitchell County.

Plug-back operations on Lone Star Gasoline Company's Page-Shell 1, near gas - distillate production from the Strawn zone in Page pool, Schleicher County, failed to yield commercial production at 5640-50 feet and 5540-80 feet. The test will gun-perforate at a higher level. Production is required this week to forestall lease expiration. Harold Opp et al's Jackson 1, Schleicher County wildcat which has been showing for a small oil well since mid-June at 4049-81 feet after using acid, swabs an average of 15 barrels of 34-gravity oil daily.

North Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
B. L. Ligon et al, T. J. Moss 1-A	1660	4320
Archer County (K-M-A)—		
W. H. Hammon-Hanlon & Buchanan, Inc., Ferguson 4-B, blk 14	550	3918
Archer County (Sikes-Ford)—		
Louis Sikes et al, W. Ford 2	172	4417
Archer County—		
Bridwell Oil Co., J. S. Bridwell 4	10	938
J. S. Bridwell 5	12	926
J. S. Bridwell 6	9	911
Fresno Oil Co., Prideaux 23	*	685
B. L. Ligon et al, G. W. Moss 3-B, sec 1	40	1291
Chas. E. Morrison et al, Prideaux 5	3	680
Archer County (Wildcat)—		
W. T. Hutcheson, Jr. et al, C. C. Conner, blk 109	*	1410
Clay County (Wildcat)—		
E. C. Norwood et al, H. C. Shipley 1	*	5066
Clay County (Burns-Browning)—		
L. T. Burns et al, Pickett 1	*	4454
Cooke County—		
C. & L. Oil Co., J. J. Perkins 4	40	940
A. D. Robinson et al, Otto 13-B, blk 5	36	1326
Wallace et al, Winstead 4	12	1210
Jack County—		
E. B. Evans et al, Jackson 2, sec 2	5	437
Jackson 3, sec 2	10	458
Jackson 4, sec 2	10	469
Jack County (Wildcat)—		
Dorian et al, E. E. Farris 1	*	590
Montague County—		
Seitz-Comegys & Seitz, Inc., Roach 3-A	120	2153
Montague County (Wildcat)—		
E. B. Madden et al, H. Smith 1-a	*	4748
Wichita County (KMA)—		
Buffalo Oil Co., Ferguson 13, lot 8	824	3834
Ferguson 15, lot 5	856	3836
Grace & Woods, Love 5	848	4025
Doss Drl. Co., Mitchell 6	720	3883
Shell-Phillips Pet. Co., Preston 8-A sec 20	1192	4001
Wichita County—		
C. W. Cooper et al, N. H. Martin 1	†	1760
Deaton & Boardman, W. F. George 1, sec 2	*	539
Fisher & Dudley, Warren 7	250	1386
J. E. Keller et al, Waggoner Bros. 5, blk 1	*	560
Magnolia, H. Reilly 151	370	1350
Montgomery & Woodlief, Weaver 3	*	1273
H. R. Phillips et al, Mack Thomas 1, sec 4	*	801
Sinclair Prairie, Martin-Perkins 2	*	615
Young County—		
Dr. R. H. Larson et al, Remington 1, sec 2248	*	710
Tex-Tor Oil Co.-J. McLester, Knight 2-A	*	4275
Henry Zweifel et al, Sewell 2-C	250	3984

*Failures; †Junked; ¶Million cu. ft. gas.

North Texas Fields

Wilbarger County gets shallow pool near Fluhman. Second lower Strawn well completed in Halsell.

Wichita Falls.—Discovery of a shallow pool in western Wilbarger County and favorable developments around recent strikes in Archer, Clay and Montague Counties pave the way for more activity in North Texas. The K-M-A field came in for a share of the attention with a promising southwest outpost stimulating lease trading on intermediate acreage.

Halsell pool, western Clay County, added its second natural producer from the Lower Strawn when Bridwell Oil Company's Furd Halsell 1-B, Section 16, Washington County Survey, A-976, flowed 25 barrels of high gravity oil hourly from broken sandy-lime at 4749-86 feet. The well failed to flow on original test at 4779 feet. It is 933 feet south of the company's discovery, completed April 28 with a larger initial from pay at 4758-93 feet.

Deep lime operations elsewhere in Clay County were disappointing. L. T. Burns et al's Pickett 1, ½ mile northwest of the Burns-Browning 2-well pool, was temporarily abandoned and rig moved after testing little oil and water at 4446 feet. The hole was plugged back from 4454 feet. Frabor-Hodges Corporation et al's Kinder 1, 4.6 miles east of the above pool, filled 400 feet with fluid, estimated 50 percent 38.6-gravity oil, after a 60-quart nitro shot at 4130-52 feet, having plugged back from 5527 feet to 4160 feet. E. C. Norwood et al's Shipley 1, wildcat in the northeast corner of the county, quit in shale at 5066½ feet, with only a trace of oil saturation in the Strawn at 4080-85 feet. Youngblood-Foree and Ramsey Petroleum Corporation's Wynn 1, 5½ miles west by north of Bellevue, was drilling in shale at 5150 feet.

Wilbarger County's new oil area was uncovered by Pois, Schulz and Pigg's J. P. King 1, Day Land & Cattle Company Survey, mile west of the Fluhman dual-pay pool. From oil sand at 1900-10 feet it had a natural flow through casing of 131 barrels of oil in 11 hours. Liner was set below the 7-inch casing seat at 1720 feet because of cavings. Fluhman was discovered in 1926 when a well produced from the 1450-foot sand, and in May, 1927, Fain-McGaha Oil Corporation and Roxana Petroleum Corporation uncovered the 1800-foot sandy-lime zone.

Wildcat Flows

Preliminary production test given Consolidated Oil Company and B. E. Hepler's W. T. Waggoner 1-CC, NW SE SE H&TC Section 36, Block 6, southeastern Wilbarger County wildcat, indicates a natural flow of 45 barrels of oil per hour, with some water reported. Production is from saturated lime at 3985-4005 feet and sandy-lime at 4026-65 feet, with oil also showing above the lime, topped at 3763 feet, that broke through between surface pipe and the 7-inch oil string at 3985 feet. This prospect commanded attention several weeks ago when it first showed for a producer. It is 3½ miles northwest of nearest Strawn production in the K-M-A field, and geophysical information places it on a separate structure.

K-M-A Extension

Expansion of the Archer County sector of the K-M-A field was assured by the recovery of oil-saturated lime at 3839-60 feet from Magnolia Petroleum Company's Minnie Thom 1, southeast corner of the north 240 acres of the south 533.4 acres of a 912.4-acre tract. W. H. Spillers Survey, A-375. Top of lime marker was called at 3714 feet, level with a producer to the southeast. Seven-inch pipe was cemented at 3800 feet to test Thom 1. Acreage between this extension area and the main field has been in demand lately, and several deals that involve development obligations are pending.

The K-M-A deep area is the busiest drilling sector in the district by a wide margin, having 19 wells in process of completion or awaiting proration gauge, and 13 tests drilling with rotary between casing points.

The 20-cent price cut instituted by Sinclair Prairie Oil Marketing Company, one of the leading oil purchasers at K-M-A, is expected to bring about a curtailment of field activity. Just prior to this unexpected price change the area had regained a favorable market position, due to the above company, Magnolia Petroleum Company and The Texas Company's stepping up their runs and absorbing well connections held by Continental Oil Company in order that the latter could resume 100 percent crude runs.

Looks Promising

Oil production from the Upper Strawn section in the Nocona pool, Montague County, assumed a promising outlook when Youngblood & Foree's Davis 1, ¼-mile northeast outpost, tested considerable oil and gas when the tool was opened 2½ minutes at 4315-45 feet. However, it is being deepened to the 4600-foot regular pay.

In the Stoneburg area, Montague County, S. J. Sackett and Continental Oil Company's Brown 1, NWc S½ SE E. T. Ry. Section 58, A-1416, was drilling at 1980 feet on a 5000-foot contract. Continental Oil Company is reported to have paid $25,000 cash for

Texas Panhandle Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Magnolia, Fee (Acct. 244) 58	391	3000
Skelly Oil Co., Schafer 95-A	593	3130
Gray County—		
Warner Oil Co., J. S. Morse 1	229	2786
Hutchinson County—		
Phillips Pet. Co., Cockrell 43	255	3056
Moore County—		
Shamrock O&G Corp., J. T. Sneed 14	¶13.4	2927

*Failures; †Junked; ¶Million cu. ft. gas.

2500 acres out of the drilling block and ½ interest in the 80-acre well site and test. The company also made heavy royalty purchases.

In Archer County, British-American Oil Producing Company's J. R. Parkey 1, SWc H&TC Section 11, Block 3, north offset to its Mankins area deep lime pool discovery, logged saturation in Caddo at 4653-69 feet and is running pipe to test. The prospective oil pay is 8 feet higher than that in the producer.

The northeast extension of Hull-Silk field is proving more consistent on production from the Lower Strawn. Bert Ligon et al's M. T. Moss 1-B flowed a 200-barrel accumulation via casing from pay at 4285-97 feet, and later gauged 40 barrels oil per hour through tubing. It is a twin location to a 40-barrel pumper completed by the company at 1285-91 feet.

Bowie County acreage block assembled for Smackover test

Shreveport.—Preparatory to the drilling of a Smackover lime test to be started by next January, Phillips Petroleum Company is adding to its 3000-acre block around the John McClure Survey, Bowie County, Texas. Shell oil Company recently withdrew a geophysical unit it had working south of Maud in the same county.

In the Jefferson end of the Rodessa district, Marion County, Texas, Arkansas-Louisiana Gas Company has made location for Cromer-Preston-Graham Unit 1, W. Peacock, R. W. Brownell and T. Hanson Surveys, and in the same county, M. D. K. Fitzwater made location for G. H. Barnes 1 (68.5-acre tract), in the J. French Survey.

Earl McDaniel and associates made location 1½ miles southwest of the Joaquin gas-distillate field, Shelby County, for M. P. Ellis 1, Hudson Survey, but it is likely that another test will be drilled before this location is started.

East Texas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Gregg County (Kilgore)—		
Potter Bros. Prod. Co., O. Daniels 4, blk 135	250	3593
Gregg County (Longview)—		
Gus Blankenship et al, R. B. White 2 (51/100-ac)	8000	3536
XYZ Oil Co.-G. E. Burford, Fuller 4 (2.33-ac)	1500	3710
Anderson County (Long Lake)—		
Hunt et al, Hathcock-Gulf 1 (194-ac)	300	5337
McCutchin et al, Brantley-FHE Oil Co. 1 (20-ac)	350	5322
Ellis County (Wildcat)—		
Compton Oil Co., Landingham 1...	*	1415
Freestone County (Cayuga)—		
Carter-Gragg Oil Co., Harwell-Magnolia 2-A	1200	4017
Henderson County (Wildcat)—		
Scrivnor et al, American Livestock & Feed 1	*	4398
Houston County (Navarro Crossing)—		
Humble, Dailey-Taylor 3	128	5874
Limestone County (Wildcat)—		
Zephyr Oil Co., Peeples 2	*	2650
Red River County (Wildcat)—		
Harrell et al, Phamplin 1	*	710
Titus County (Talco)—		
Humble, McPeters 6 (78.26-ac) ..	407	4329
Van Zandt County (Van Field)—		
Cantrell et al, Coker 1	*	1390
Marion County (Jefferson-Rodessa)—		
Tippett Oil Corp., Howard 3, Jno. Hanks sur	240	6072

*Failures; †Junked; ¶Million cu. ft. gas.

Southwest Texas Fields

Robstown prospect wildcat flows 44.6 gravity oil. Several new sands are opened in Jim Wells County.

Corpus Christi.—Flowing at the rate of 2¾ barrels of 44.6-gravity pipe line oil per hour through ⅛-inch choke, Shield Oil Company's Potter 1, has been completed to open Robstown field of Nueces County. In the meantime, preparations were being made for drilling additional tests on the prospect, mapped as a possible major structure.

The well, having been drilled to 7089 feet, was plugged back and perforated at 5559-68 feet with 36 shots in the Frio sand section the only favorable zone encountered.

Hiawatha Oil & Gas Company has recovered all but 42 joints of drill pipe stuck in F. J. Smith 6-B, deep test in the Saxet field. The well is bottomed at 9880 feet, apparently in a new oil sand for this Nueces County producing area.

One of the most interesting areas in the county at this time is the Richard King pool, which is an east extension area to Bentonville structure. Southern Minerals Corporation is running several rigs in the development of production in sands at 4000 feet, 5200 feet, 5300 feet, all in the Frio, and at 6100 feet, which is in the Vicksburg. Several other lenses in the field have indicated production.

New Ben Bolt Sand

Jim Wells County retained its discovery ratio with several new sands being opened. At Ben Bolt, H. J. Mosser et al's E. Perales 1, at the north end of the structure, was flowing dry gas from perforations 5383-86 feet. Shut in, the pressures equalized at 2100 pounds. This sand is about 100 feet below the discovery and only other pay in the field.

Southwest of Ben Bolt and on a separate prospect, Heard and Keys' Clara Driscoll 1, was coring below 5300 feet, reportedly logging the markers unusually high.

Rand Morgan apparently has opened a new sand lens immediately overlying the regular pay of the new Reynolds field of Jim Wells County. Casing has been set on two wells, Fee 2-F, which has the sand at 5111-16 feet, and Fee 3-F, which has the sand at 5122-25 feet. The regular sand is more than 40 feet deeper.

Hunter, Quinn et al's Pundt 1, discovery well of Wade City field, also in Jim Wells County, was flowing a barrel of high gravity crude per hour through ⅛-inch choke from perforations 4809-13 feet. Pressures were 1300 pounds on tubing and 1400 pounds on casing, the gas/oil ratio being high. The well previously flowed distillate from higher perforations in the same sand.

Magnolia Petroleum Company is fishing in its mile west extension to La Gloria field, Jim Wells County. Maun 1, which was perforated at 6798-6806 feet, was being swabbed at 4800 feet when the line broke. It showed oil, gas and salt water on several drill stem tests through perforations at the above level.

John G. Mayo et al's Vogt 1, discovery of the Victoria field of Victoria County, was showing was showing up much better after casing was reperforated in the Catahoula at 2552-55 feet. The well previously had been tested through perforations 2551-55 feet, but mud prevented it from flowing properly. At last reports, it was making a lot of gas and was spraying mud and oil under 250 pounds tubing and 350 pounds casing pressure. The flow was through ¼-inch choke on tubing. The hole was drilled to 5523 feet, but plugged back, which probably accounted for excessive amount of mud coming out of the formation. Regardless of the outcome of the first operation, another well will be sunk immediately to test a series of shallow sands.

To Test Discovery

In Jackson County, preparations were being made for gauging Cron, Gracey, Moore and Ahern's Druschel 1, which has opened the Texana distillate field, about 4½ miles northeast of Lolita. The well flowed a large volume of gas and sprayed some fluid through ⅛-inch choke. It showed 2100 pounds tubing and 2325 pounds casing pressure. Perforations were made in a Frio sand at 5705-8 feet.

Lonnie Glasscock apparently defined the West Ranch-Vanderbilt area to the northwest when J. H. Drummond 4, outpost well, found sandy shale and shale with only a slight odor between 5549-89 feet, where the regular sand was expected. The test is drilling considerably below this depth, apparently on a search for lower zones.

Magnolia Petroleum Company is drilling an exploratory hole in Cordele field, Jackson County, in an effort to determine if the 2700- and 2800-foot zones in this area are a single sand body or separate lenses.

Use same well as producer and repressuring injector

Mission.—What may develop into one of the most interesting recycling projects ever attempted is now under way in LaBlanca field of Hidalgo County by Pantano Petroleum Company and associates. A new 8000-foot distillate sand is being produced and its residue gas is being injected into a depleted 7800-foot zone, all from the same well.

R. E. Harding 1, Lot 4, Block 94, was carried to 8074 feet; 7⅝-inch casing was landed on bottom and perforated at 8035-74 feet. Another set of perforations was made at 7875-7905 feet. A string of 5-inch casing was run into the hole to use as tubing, the pipe being set on a packer below 7900 feet.

The well was completed through the 5-inch pipe, flowing 80 barrels of distillate per day under 3850 pounds working pressure when choked to ⅜-inch opening. The back pressure on the sep-

South Texas Completions

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Bexar County—		
Long Brothers, Applewhite 1 (WC), Fernando Rodriguez sur.....	*	2361
Pummill, Dullnig 1 (WC), Justo Esqueda sur 100.....	*	lcn.
Guadalupe County—		
Burton, Garvin, Womack, Weil 1 (WC), E. de Los Santos Coy sur	*	400
Petty, Warnecke 1 (WC), New Berlin area	*	764
Glenn, Engelke 1 (Spiller pool), pb td 2180 ft	10	2370
Hueners, Boecker 1 (WC), John Baker sur	*	1015
Wiegand Bros., Willie 3-A (Darst Creek)	10	2636
Medina County—		
Wagner, Medina Irrigated Farms A-42 (Chicon Lake)	1½	398
Ziegler, Haby 1 (WC), W. G. Still sur No. 1	*	980
Travis County—		
Burns, Bengstom 2 (WC), Henry Martin sur 65	*	1290
Williamson County—		
Aldridge, Sloan 1 (WC), W. J. Baker survey	*	768

CORPUS CHRISTI DISTRICT

Hidalgo County—		
Brinkoeter, George 3 (Samfordyce)	*	2873
Pantano, Harding 1 (WC), La Blanca area .....¶20 &	100	8074
Jackson County—		
Humble, Toney 1 (Vanderbilt-West Ranch)	600	5515
Magnolia, West A-13 (Vanderbilt-West Ranch)	800	5525
A-14	800	5108
Mayo, Tucker 1 (WC), 1½ mi nw Vanderbilt	*	7473
Richardson, Drushell 1 (Cordelle)..	350	2748
Steinberger, Drushell A-2 (WC) in Edna area	*	lcn.
Jim Hogg County—		
Humble, Atwood 5 (Colorado)....	135	3077
Jim Wells County—		
Bridwell, Elozondo 1 (Ben Bolt)..	550	5283
Graham, Thigpen 1 (East Alice)..	*	5411
Mosser, Perales 1 (Ben Bolt)	¶20	5467
Osborn & Henshaw, Thigpen 5 (East Alice)	350	5394
Live Oak County—		
Luling, Byler 1 (WC), survey 95..	*	4000
Nueces County—		
Buchanan & Blanco, Gandy 1-C (Minnie Bock)	135	3831
Humble, Turcotte 3 (Flour Bluff)	650	6641
Reed & Cox, Ruegg 2 (Minnie Bock)	*	6003
Seaboard, Luby 46 (Luby).....	400	4365
Southern Minerals, King 6-B (Richard King)	550	5398
Mastin 7 (Saxet)	400	6905
Refugio County—		
Phillips, Toland 1 (WC), in La Rosa area	¶20	7028
San Patricio County—		
Houston, Baldwin 5 (East White Point)	600	5677
Sinclair Prairie, State 1 (East White Point)	600	5642
Standard of Kansas, Haisley 1 (East White Point)	600	5676

LAREDO DISTRICT

Duval County—		
Argo, Fee-Rodden 7 (Hoffman)..	123	2721
Clark & Cowden, Peters 3-B (Rancho Solo)	64	1840
Hiawatha, Parr 26 (North Sweden)	450	4740
Longhorn, Miller 7 (Longhorn)....	350	4913
Magnolia, DCRC 15 (189) (Cedro Hill)	110	1438
32 (201) (Eagle Hill)	397	2134
33 (201) (Eagle Hill)	350	2115
40 Weil (Hoffman)	216	2865
Miller, Miller 11 (Longhorn)	425	4907
12 (Longhorn)	425	4094
Porter & Blanchard, Dinn 1 (WC), sur 666	*	2600
Rio Bravo, Peters F-1, (North Kohler)	¶5	2642
Wellington, Welder 18-C (Seven Sisters)	87	1693
McMullen County—		
Edwin M. Jones, Ezzell 86 (Ezzell)	*	1560
87	*	1558
88	*	1575
Schumway, Shiner 6 (WC), Henry Brewer sur	*	1411
Starr County—		
Foster, Garza 1 (WC), Juris of Mier	*	83
Rinehart, Bowman 1 (WC), sur 888	*	3519
Webb County—		
Amigos, Garcia 3, (Mirando City)..	*	2600
Boysen & Jones, Watkins 3 (WC), sec 20	*	850
Zapata County—		
Buffalo, Hinnant 9-B (Mirando Valley)	110	1827
Martinez 2 (Mirando Valley) ..	*	1795
Martinez, Bruni 2 (WC), Barrocito Pasture, Borrego gr	*	355
Nash & McKay, Garza 18 (Escobas)	*	1142

*Failures; †Junked; ¶Million cu. ft. gas.

arator was gauged at 500 pounds. Distillate is stripped through the separator, gas pressure boosted and injected on the casing side of the well, going into the 7800-foot zone. At such time as the 7800-foot sand gains a pressure of 2300 pounds, the recycling in this manner is to be ceased.

The 7800-foot sand became depleted when several wells blew out and ran wild. One test flowed gas and distillate from this level for many months.

Magnolia Petroleum Company landed casing at 5911 feet in Fee-Guerra 2 and will attempt to complete a distillate well to open a new field 4½ miles southwest of LaReforma in Starr County. The well cored a sand in basal Frio or top of the Vicksburg at 5800-32 feet and on a series of drill stem tests showed high pressure with some distillate. It went to 6555 feet before plugging back. The test is believed to be on a separate structure from La Reforma field.

Important Wilcox test on Pettus trend disappoints

Beeville.—Wilcox exploration along the Pettus trend received a setback with abandonment of W. L. Goldston's C. C. Turk 1 at 8478 feet. The well topped Wilcox formation around 8170 feet, found some porosity, but failed to encounter saturation. It was drilled on a geophysical prospect 6 miles east of Ezzell.

Marshall Purvis's Afflerbach 1, just southeast of Yorktown, in Dewitt County, is drilling ahead below 4700 feet, projected to around 7500 feet as a Sparta-Wilcox operation.

Rumors persist that a Sparta-Wilcox operation will shortly be drilled on Maetze structure in Goliad County. This well likely would be carried to 8500 feet or deeper.

Live Oak County's potential field opener proved disappointing and is being drilled ahead. Sal Viejo Oil Corporation and Western States Gasoline Company's Riser 1, after swabbing considerable 20 gravity crude from 2152 feet, 200 feet in the Jackson formation, has resumed drilling to the Pettus sand. If not successful, it will plug back for completion. The sand section was logged at 2126-48 feet.

Another Ezzell ranch prospect productive

Laredo.—Another prospect on Ezzell ranch of eastern McMullen County apparently was being placed on the producing list with Edwin M. Jones finishing Ezzell 96, SW Section 4, in a Jackson sand at 1050-59 feet. The well is estimated at 25 barrels per day through perforations at 1056-60 feet. The hole had been drilled to 1537 feet, passing through a gas sand at 1114-18 feet and setting casing at 1140 feet.

The above well is about ¾ mile southwest of South Calliham field, but geological work indicates that it is on a separate small structure. Harry Ezzell has commenced a south offset and E. M. Jones is to drill a north offset to the discovery.

Preparations were being made to complete a second oil well in the new Chiltipin field of Duval County. It is a direct southwest offset to the discovery gas producer. The new well, drilled by Hawkins-Howell Drilling Company on Garcia land, reportedly cored an oil and gas sand at 4749-78 feet and sand and shale to 4821 feet. Another report corrects this sand to 4790-4815 feet. The well was being completed as the week closed.

20-acre spacing requested for wells in South China

Operators in South China, Jefferson County, requested 20-acre spacing at a hearing before the Texas Railroad Commission last week. Wells would be located 466 feet from lease lines and 933 feet apart.

Proration would be on acreage and potential with 50 percent allocated on each factor. A maximum of 30 acres could be assigned to the final well on the lease under the rules proposed.

C. W. Byron, geologist for Echols, Hebert and Smith, said that production was discovered on June 24, 1939, in the company L. D. Fontenot 1, which is located in Section 17, HT&B Survey. Depth was 8755 feet, and production is from 36 feet of sand in the Frio. Oil produced is 39 gravity.

Evidence indicated that while the Frio is a blanket zone productive sand is lenticular. Byron estimated porosity at 30 percent and permeability at 500 milli d'arcys. He said the field is water driven. He estimated recovery at 650 barrels per acre-foot.

Recommended rules provided for 1200 feet of surface casing cemented to the surface and an oil string cemented 2000 feet above the shoe. A maximum gas/oil ratio of 2000/1 with a total displacement factor for high gas/oil ratio oil wells was recommended.

The only protest was offered by Marrs McLean, royalty owner in the area, who asked for 10-acre spacing.

Shell requests 20-acre spacing for Burns wells

Twenty-acre spacing for wells in the Burns pool, Clay County, was requested by Shell Oil Company at a hearing before the Texas Railroad Commission last week. L. T. Burns, owner of the discovery well, joined in the request. The KMA plan of spacing and proration would be applied. This would allow wells to be spaced 330 feet from lease lines and 660 feet apart. Proration would be on acreage and per-well, with 50 percent of the allowable distributed on each factor.

The field is located southwest of Henrietta and is producing from the Middle Strawn series. The initial producer was completed in March at 4461 feet. It carried 31 feet of effective sand. The east offset was a producer, but the south offset was drv, and the northwest offset, now drilling, appears likely to produce. The Bridwell-Halsell field, about eight miles north of the Burns, is the nearest field producing from the same horizon; however, production there is some 300 feet below the water table in the Burns pool, which is found at 4454 feet.

W. H. Collins, Shell petroleum engineer, expressed the opinion that there is no effective water drive in the field. He said that permeability was slightly higher than in KMA and estimated the average gas/oil ratio at 900/1. He recommended 100 feet of surface casing cemented to the surface and an oil string set with 150 sacks of cement.

Deepest hole in Missouri campaign quits at 2851 feet

St. Joseph, Mo.—Abandonment of the first well to start drilling in the current wildcat play over the Forrest City Basin came last week. J. H. Everitt and associates began moving out at Fred Spring 1, SWc SE 30-62n-38w, after going to 2851 feet in Viola lime.

In footage this is the deepest hole drilled in the current campaign. Geologically, however, it is shallower than most of the other 12 wells which have been abandoned. These wells were started after the Holt County well but finished earlier, since they found Arbuckle lime at shallower depths and had less trouble in making hole. The Spring well was abandoned after two twist offs below 2800 feet.

No other well has had to drill as deep as 2000 feet to reach the Arbuckle lime. Although the full development in Missouri is credited to the Forest City Basin, some of the failures as well as some of the wells still drilling are outside its limits. Shallow depths at which this lime was found indicates that none of the abandoned wells was well into the trough of the major geological feature of the area.

Most of the abandoned wells as well as those still active had small shows of oil or gas, frequently in shallow beds of Pennsylvanian age. Fresh water, however, has been the consistent liquid encountered in these sands as well as deeper formations.

A take-off in operations finds 50 percent of the wildcats rigging up or drilling and the remainder shut down. In Adair County, Mayson Oil Company's McGonigle 1, CNL SE NW 20-63n-13w, was drilling below 750 feet; Davis Brothers et al's Gee 1, NWc SE 28-60n-35w, Andrew County, shut down operations at 1480 feet. In the same county Jones et al's Holt 1, SE NW NE 34-60n-35w, set surface pipe to shut off upper water and shut down operations. Miller et al's Carrough 1, C SE SE 24-57n-35w, Buchanan County, completed rig. Loomis' Henlein 1, C N½ NE SW 31-55n-24w, Carroll County, had a slight show of gas at 247-255 feet. Frank Buttram et al's Vance 1, NW SE NE 35-53n-18w, Chariton County, was below St. Peter (Wilcox sand), topped above the 800-foot level. Clay County has Eastern Drilling Company's Williams 1, NWc NE 28-53n-32w, drilling below 1500 feet. Gas was estimated at 300,000 cubic feet at this test from 595 to 600 feet in sand. Moore et al's McQuate 1, NE SW SW 11-57n-31w, DeKalb County, shut down for casing at 1490 feet, finding Hunton lime at 1383 feet. Elwell et al's staked location for Moulin 1, NWc NE 10-62n-26w, Harrison County. Holt County had two wildcats, one being abandoned at 2851 feet in Viola lime and Markaham et al's Gaffney 1, SW SE SW 24-63n-40w, which stopped drilling after spudding. Davis Brothers et al's Manning 1, SEc NW 22-58n-23w, quit at 550 feet. Moore et al's Moss 1, NW SW SE 30-65n-24w, was drilling below 1000 feet after underreaming 10-inch casing. This test is in Mercer County. J. W. Simms et al's Wilson 1, NEc SW 2-37n-21w, Polk County, replaced oil string at 1638 feet. A fair show of oil was struck from 1624 to 1627 feet. C. E. Dittman et al's Houston 1, NW SW NE 26-65n-19w, topped Mississippi lime at 513 feet and drilling ahead. In Ray County, Featherlin and others' Penny 1, C W½ NE 1-53n-27w, shut down at 289 feet, finding Wayside sand at 235-250 feet. This identical sand has contributed some nice wells in Boring area of Osage County. Loomis' Macey 1, C NW SE 10-53n-27w, was drilling just below Wayside sand. Wright et al's Turner 1, C NW NW 27-59n-9w, Selby County, shut down at 612 feet to run casing. A show of oil occurred at this level. T. E. Baldwin's Johnson 1, NW NE NE 21-65n-15w, Schuyler County, had machine up and was making surface hole.

The first location made in Forest City Basin, H. V. Elwell et al's Taylor 1, SW NW NE 12-62n-21w, Sullivan County, was drilling below 865 feet after landing 10-inch casing at 825 feet. Brin & Nathan's Decker 1, C NW NW 1-61n-38w, Holt County, was drilling below 300 feet. Monarch Royalty Company's Lee 1, C SW SE 11-39n-30w, was shut down over litigation.

Two wildcats in the southern portion of the state outside of Forest City Basin were shut down. Coastal Petroleum Company et al's Pierson 1, SW NE NW 27-22n-6e, shut down at 149 feet, location being in Butler County. Diemund Oil Company's Cooper 1, SEc 14-29n-9e, Texas County near Houston, cemented 6-inch pipe at 1249 feet.

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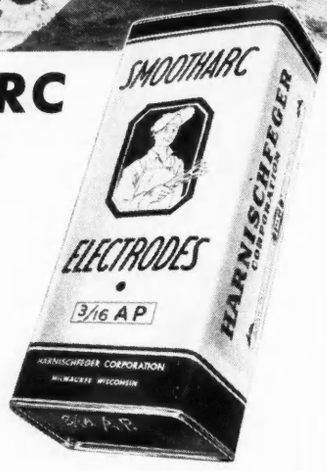

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Texas Gulf Coast

Gas and distillate odors cored in Clodine wildcat. Turnbull's Cotton Lake wildcat testing oil sands.

Houston.—N. W. Hunter's Settegast 1, in the Clodine area, E. P. Whitehead Survey, Chambers County, attracted considerable attention last week when sands with odors of gas and distillate were cored, but a drill-stem test at 7200 to 7240 feet showed only mud and drilling continued. Settegast 1 cored broken formations with gas and distillate shows from 7180 to 7220 feet. Sandy shale with no shows was reported from 7220 to 7240 feet.

In Cotton Lake area, Chambers County, J. R. Turnbull was swabbing Sheppard 1, R. A. Porter Survey at 6461 feet. Screen and liner was reset last week and Turnbull is testing at 6459 to 6461 feet, where oil sands were cored.

Wilcox Disappointment

The lower Wilcox sand evidently will not produce at Joe's Lake field, Tyler County, according to the log of Republic Production Company's Fee 22, which was drilled to 9014 feet. An electrical log indicated salt water sands in the lower sections. The well has been plugged back to the regular producing sand and 5½-inch casing set at 7770 feet.

McCarthy Test Closed

Glenn H. McCarthy's Houston Farms Development Company 1 in the Chocolate Bayou area, Perry and Austin Survey, Brazoria County, continues to be the "mystery" wildcat in the Texas Gulf Coast. From a reliable source it is reported that the potential discovery well at Chocolate Bayou is making squeeze jobs to shut off salt water sands before making production tests. Christmas tree has been installed and flow lines connected to the burning pits. No tanks have been erected. The well is bottomed below 10,350 feet with 5½-inch casing run to 10,250 feet. It is reported that the horizon around 10,220 feet is to be tested. It is still believed, contrary to several rumors, that the best sand was cored around 8900 feet.

McCarthy is drilling another wildcat in the Anchor area, J. De Valderas Survey, Brazoria County, on a farmout from Humble Oil & Refining Company. Carr 1 was down to 9000 feet in shale and running an electrical log at the end of the week. A sandy shale formation with a gas odor was reported around 8920 feet.

Probably the second producer for the old San Felipe dome in Waller County will be C. D. Grant's Vaughn 2, J. McFarland Survey. The hole is bottomed at 3005 feet in shale. Cores from 2991 to 3004 feet were 75 percent sand with a 3 percent cut of oil. The well has been shut down until casing is hauled in. The discovery well was completed around 2960 feet.

Coastal Development Company has decided to abandon Sweeney 1 on the Ogburn prospect, J. C. Ogburn Survey, Harris County, at 7505 feet. The wildcat had a broken formation at 7063 to 7073 feet which had odors of gas and distillate.

Robertson Lake Failure

On the Robertson Lake prospect in Chambers County, Plymouth Oil Company abandoned Wilborn 1, W. Moore Survey, at 9586 feet in shale in a sidetracked hole last week. Salt water sands were cored at 6650 feet and 6700 feet.

Attempts by Superior Oil Company to open flank production on the old Long Point prospect, Fort Bend County, looked discouraging last week when Beard 1 was abandoned at 7949 feet. No shows of oil were encountered, but the wildcat had trouble with heaving shale.

Old Ocean Extended

Old Ocean field, Brazoria County, was extended north last week when Harrison & Abercrombie completed Markle 1, Polly and Chance Survey, for 314 barrels of 36.7-gravity oil daily from 10,453 feet.

On the northwest side of Fannett field, Jefferson County, Gulf Refining Company is preparing to complete Bordages 1, J. Probarth Survey, in oil sands at 7618 to 7625 feet and 7665 to 7672 feet. The well was drilled to 7854 feet in salt, topped at 7846 feet.

Texas Gulf Coast Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Batson—		
Dowell, Milhome 11	9	1055
Barbers Hill—		
Texas Gulf, Wilburn 8	570	5595
Clinton—		
Stanolind, Oates 2	*	4720
Fairbanks—		
Amerada-Stanolind, Foley 8	152	6848
Spaulding C-2	77	6844
Margay Oil Co., White 2	121	6842
Stanolind, Jahnke 6	162	6847
Union Producing Co., Whitehead et al 9	154	6852
Friendswood—		
Humble, Hermann Hospital 11	310	6045
Hardin—		
Humble, Partlow B-5	97	7546
League City—		
Phillips, Rice Estate 1	264	9313
Louise—		
Gulf Stream, Stockton A-1	*	6505
Pure, Houston 5	10	5159
Old Ocean—		
Harrison & Abercrombie, Markle 1	314	10,453
Pickett Ridge—		
J. B. Ferguson, Pierce Estate 1	167	4696
Saratoga—		
Norcoff Corp., Caswell 1	*	6090
Segno—		
Gulf, Regan-Wing 1	571	8078
Thompson—		
H. M. Naylor, Booth 1-B	1012	7820
Withers—		
Texas Co., Pierce Estate C-61	121	5545
Chambers County—		
Plymouth, Wilborn 1, Robertson Lake area, W. Moore sur	*	9586
Fort Bend County—		
Superior, Beard 1, Long Point area, E. & T. C. No. 111	*	7947
Harris County—		
Coastal Dev. Co., Sweeny 1, Ogburn area, J. C. Ogburn area	*	7505
H. H. Givens, Adoue 2, Addicks area, D. Middleton sur	*	2690
Matagorda County—		
Sun, Cavalin 1, Buttermilk Slough area	35	7860

*Failures; †Junked; ¶Million cu. ft. gas.

This well may extend the deep sand about 1500 feet east.

At North Markham field, Matagorda County, Ohio Oil Company's Carlson 2, I. & G. N. No. 2, reaming at 8741 feet in shale last week, is below the regular producing horizon for the field.

Lovell Lake operators want 20-acre spacing

Operators in the Lovell Lake field, Jefferson County, requested 20-acre spacing at a recent hearing before the Texas Railroad Commission. Wells would be located in the center of square 20-acre units, and proration would be on acreage alone under the plan submitted. A maximum of 40 acres could be assigned to one well.

Humble Oil & Refining Company presented the application and asked for a minimum of 1100 feet of surface casing cemented to the surface and an oil string cemented 600 feet above the shoe.

Testimony presented by P. H. Clark, geologist, indicated that production is found in two sands, one at 7720 feet and one at 7820 feet. He requested a maximum gas/oil ratio allowance of 2000:1 for the upper sand and 10,000:1 for the deeper horizon where pressures are higher. The field was discovered by Glenn McCarthy, February 15, 1938, with Broussard Trust 1. The producing sands are Frio.

The gas-oil contact is at 7720 feet and water-oil contact in the upper sand at 7723 feet, leaving an interval of only 3 feet which might produce oil. Four dry holes have been drilled in the field already. The two sands are separated by approximately 100 feet of impervious shale, and no gas cap has been located in the second sand so far.

In this deeper horizon, porosity is unusually high, averaging about 29 percent, and permeability of approximately 2000 millidarcys was reported by Clark. He estimated that this sand would include about 3000 productive acres, of which Humble Oil & Refining Company holds 2300.

W. F. Daniels, petroleum engineer, said that bottom-hole pressure at 7700 feet was 3474 pounds, and that at 7780 feet the shut-in pressure from the deeper sand is approximately 3517 pounds. Oil produced in the upper horizon ranges from 35 to 36 gravity, while 37- to 38-gravity oil is produced from the lower sand.

Texas drilling permits

Permits for drilling 184 new wells in Texas were approved last week by the Texas Railroad Commission, 5 more than were permitted the week before.

Nine permits were approved in the East Texas field in Gregg County, while 7 locations were reported from the remainder of the East Central Texas area.

Producers in West Texas reported the largest number of permits including 13 in Ector County, and West Central Texas operators listed 11 locations.

The commission approved 43 permits in the Gulf Coast District, while 39 were allowed in Southwest Texas with 11 in Duval County. There was one permit granted in the Panhandle in Hutchinson County, and 29 were approved in North Texas.

South Louisiana

Two new oil sands give Venice five pay horizons. Humble finds new gas-distillate sand at Perkins.

Lake Charles.—Two new oil sands were logged by Tide Water Associated Oil Company at Venice field, Plaquemines Parish, last week. On the north side of the field Buras Levee Board 5 was completed at 7900 to 7914 feet making 180 barrels of pipe line oil daily through a ⅛-inch choke. Tubing pressure was 1800 pounds. This, one of the best wells completed in the field, is the discovery well for the deepest sand. On the south side of the field Manhatten Fruit Company 10 cored 54 feet of solid saturated oil sands at 7483 to 7537 feet last week and was down to 7549 feet. It will core a few feet deeper before setting casing for a production test. This is the second deepest sand logged at Venice. The field has been producing from 3 sands, one at 3600 feet, the next at 5600 feet, and the third at 7200 feet. The company has made location for Buras Levee Board 6, about ½ mile west of the field in Section 27-21s-30e.

Humble Oil & Refining Company opened a new gas and distillate field in Calcasieu Parish when Edgewood Land 1, Perkins area, was tested last week through 10 perforations at 7038-42 feet. A drill-stem test through ¼-inch chokes recovered mud cut with distillate. Two-inch tubing was run to 6942 feet and the wildcat came in making 900,000 cubic feet of gas daily and a small amount of distillate through a 3/16-inch choke. Tubing pressure was 2800 pounds. The company is drilling Edgewood Land 2 in the same area.

Watch Wilcox Test

One of the most closely watched wells at Eola, Avoyelles Parish, is J. Edward Jones' Sam Barone 1, ¾ mile northeast of production. Last week the semi-wildcat was coring below 6550 feet in sandy shale after running an electrical log to 6516 feet. Sam Barone 1 is running higher than expected on the Cockfield sand. It is reported to be on a separate high from Eola field. This high is said to have been confirmed by geophysical work by Amerada Petroleum Corporation, Stanolind Oil & Gas Company and Gulf Refining Company. Sam Barone 1 will be drilled on down to the Wilcox formation.

Three-fourths mile east of Eola production, Geo. Lilly's Haas 1 was completed last week after casing was perforated with 340 shots in Wilcox formation at 8490 to 8570 feet. Instead of the well coming in making 40- to 42-gravity oil, as other wells in the field do, it flowed 52.2-gravity distillate at the rate of 342 barrels daily through a 12/64-inch choke. Tubing pressure was 2700 pounds and casing pressure, 2750 pounds. The well was also making 1,500,000 cubic feet of gas daily.

Northwest of production at Eola, Sid Richardson's Sam Haas 1, down to 8813 feet at the close of the week, was running an electrical log. The well had a show of oil below 8400 feet and at 8552 to 8562 feet. Casing may be set for a production test.

Southwest of production at Eola, Amerada Petroleum Corporation abandoned Haas 1, defining the field in this direction. It was abandoned at 9181 feet, about 600 feet in the Wilcox formation.

East of production at Eola, Gulf State Exploration Company continues testing Haas 1 at 8576 feet.

Logs New Sand

On the northwest side of North Crowley field, Acadia Parish, Humble Oil & Refining Company logged a new oil sand in Stakes 2 and is preparing to make a production test at 8564 to 8580 feet. It is about 1000 feet northwest of Stakes 1, completed at 7198 feet.

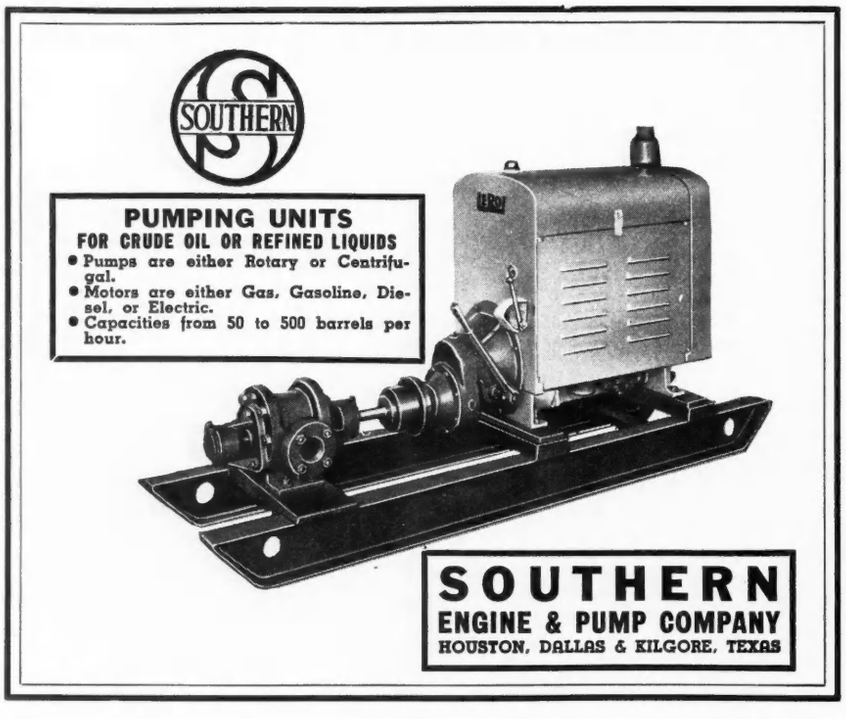
Shell Oil Company has completed its first well at Chalkley field, Cameron Parish. Hanszen 2, southwest of production, flowed 567 barrels of pipe line oil daily through a 14/64-inch choke with a tubing pressure of 1200 pounds and a casing pressure of 1650 pounds from 8814 to 8880 feet.

Sparta production was extended northeast last week at Villa Platte, Evangeline Parish, when Continental Oil Company completed Derouen 2 at a plugged-back depth of 9014 feet. The Tate sand was not found in the well, but the Haas sand proved productive. The well made 414 barrels of 42-gravity oil daily through a 3/16-inch choke with a tubing pressure of 1500 pounds and a casing pressure of 2600 pounds. Derouen 2 was drilled below 10,300 feet in the Wilcox and plugged back to 10,270 feet.

Banister prospect, Beauregard Parish, continues to look disappointing in The California Company's Long Bell Lumber Company 1. Last week another drill stem test at 10,180 to 10,210 feet showed 69 barrels of salt water in 2½ hours. The hole has been plugged back to test around 9600 feet.

W. T. Burton's L & N RR 1 in the Unknown Pass area, Orleans Parish, looked discouraging last week when a test through perforations at 10,138 to 10,143 feet and 10,154 to 10,164 feet showed wash water, salt water, mud, no oil, and a slight trace of gas. Operators will probably test again.

On the south side of Welsh dome,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South Louisiana Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bancroft—		
Republic, Columbia Land & Timber Co. 9	300	7330
Baton Rouge—		
Geo. Echols, University Hills 1	264	6486
Wm. Helis, Farris et al 1	261	6465
Cameron Meadows—		
Burton Sutton Oil Co., School Land 26	*	8065
Charenton—		
Pan American, Veeder 17	*	2653
Chalkley—		
Shell, Hanszen 2	567	8880
Darrow—		
Humble, Community 23	*	6254
Eola—		
Geo. Lilly, Haas 1	342	8570
Grand Bay—		
Superior, State 2	290	8458
Golden Meadows—		
Helis-Danciger, School Board 1	264	5449
New Iberia—		
Wm. Helis, Sabastier 6	*	2451
Port Barre—		
Smith & McDannald, Futral 1	582	5400
Venice—		
Tide Water, Buras Levee Board 5	180	7914
Villa Platte—		
Continental, Derouen 2	414	9014
Welsh—		
Stanolind, Irwin & Bishop	*	6458
West Hackberry—		
Superior, R. Vincent 1	391	7597
Livingston Parish—		
Fowler & Tower, Hood 1, Denham Springs area	*	8008

*Failures; †Junked; ¶Million cu. ft. gas.

Jefferson Davis Parish, Stanolind Oil & Gas Company has abandoned Irwin-Bishop 3 at 3449 feet after swabbing 100 percent salt water from 20 perforations at 3445 to 3449 feet. The south flank test was drilled to 6458 feet in salt, being first ever logged at Welsh. Top of the salt was logged at 6315 feet.

In the Denham Springs area, Livingston Parish, Fowler & Tower's Ellis Hood 1, was abandoned last week at 8008 feet in shale. The wildcat had a slight show of oil at 7634 to 7670 feet.

Louisiana permits

Shreveport, La. — Forty-one drilling permits were issued last week by the Louisiana Conservation Commission of which 7 were for North Louisiana divided among the following parishes: Caddo, 5; Sabine, 1; and Webster, 1. The 34 in South Louisiana were in the following parishes: Acadia, 1; Ascension, 1; Beauregard, 1; Calcasieu, 2; East Baton Rouge, 2; Evangeline, 1; Iberia, 1; LaFourche, 7; Rapides, 3; St. Mary, 11; Terrebonne, 1, and Vermilion, 3.

Arkansas permits

El Dorado, Ark.—Six drilling permits were issued last week by the Arkansas Oil & Gas Commission, 4 of which were in the Magnolia field of Columbia County, as follows:

G. H. Vaughn's Joel Jones B-1, NW NE 21-17-20; Southwood Oil Company's A. L. Poindexter 1, C N 20 acres SE SE 23-17-20; Atlantic Refining Company's Luel Spain 2, SE SW 18-17-19; and Standard Oil Company of Louisiana and Oliphant Oil Company's Merritt Unit 1, SW SE 16-17-20. The other two permits follow: J. R. Lockhart's Porter Jerry 2, NE SE 15-17-14, Union County and East Texas Refining Company and Erwin & Leach's Cleve Warren A-2, 330 feet south and 660 feet east of northwest corner 24-16-24, Lafayette County.

Working island and water off Mississippi coast

Jackson, Miss.—Gulf Refining Company has a geophysical unit making a survey of Cat Island, just off the coast of Harrison County, south Mississippi, and 6 miles from Gulfport, which it recently took under lease. The island comprises over 4000 acres.

Phillips Petroleum Company, which several months ago secured option on state lands in Mississippi Sound, has 2 geophysical units working in this offshoot of the Gulf of Mexico.

Sun Oil Company has completed the first of a series of core-hole tests it is drilling in Jefferson County, south Mississippi, near Union Church, and is drilling the second. Union Producing Company has a shooting unit working near a test United Gas Public Service Company drilled in 1931 in Section 33-15n-3e, Warren County, Mississippi.

Gulf Refining Company has a magnetometer unit working in Marion County, Alabama.

DR. F. F. HINTZE, Salt Lake City, is in the Lloydminster field of Alberta, Canada, supervising a test being put down by Franco Oils, Ltd.

North Louisiana Fields

Shreveport drilling about ended with 47 wells completed. Seventh Glen Rose well at Lake Bisteneau makes wet gas.

Shreveport. — Three oil wells were completed last week in the Shreveport field to bring to 47 the total of wells in this basal Glen Rose lime field and a fourth operation was at final testing stage, the last active operation in the field.

Two of the week's wells showed 15 percent salt water along with the oil and one was completed after acidization. Both were edge wells. Only a limited number of offset locations remain to be drilled in the field whose limits, except to the east into the residential part of Shreveport, have been defined.

The seventh basal Glen Rose lime (Pettet) wet gasser in the Lake Bisteneau field, Bienville Parish, was completed at Arkansas Fuel Oil Company's Long-Bell 1, NW NE 14-16n-10w, at 5190 feet gauging 66,620,000 cubic feet of wet gas daily.

The Pettet horizon at Sligo, Bossier Parish, was extended 1 mile southeast by successful completion of H. M. Harrell and associates' Thompson 1, C SE 20-17n-11w, that was good for 18,000,000 cubic feet of gas daily after casing was perforated at 5045-70 feet.

One new wildcat location was made in Caddo Parish, Davis & Crabtree's W. H. Keith 1, C E½ SE 9-15n-15w, which will seek production from the 5100-foot Glen Rose horizon in which a small gasser was completed several months ago in W. J. Hunter and associates' Stoer 1, Section 10-15n-15w. Around Section 28-17n-13w, Caddo Parish, just south of the Broadmoor subdivision of Shreveport, in the southeast part of the city limits, David Crawford and associates are assembling a block for a 6000-foot test to spud by November 1. The acreage centers about midway between two 6000-foot failures, one drilled by Arkansas Fuel Oil Company in Section 4-16n-13w, and the other drilled in Section 17-17n-13w, by F. W. Martin and Company.

Samuel S. Alexander is moving in materials for a wildcat test in Catahoula Parish, Alexander Peck 1, SW NE 33-11n-8e, which has announced contract depth of 5000 feet and may go to 7000 feet. A wildcat, Ross Morel and associates' Ballard Estate 1, Section 8-9n-7e, in the same parish, was abandoned at 3269 feet.

Gulf Refining Company started mov-

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ing in materials for its lower Marine test in the Elm Grove field, Bossier Parish, W. H. Hodges 1, located 3131 feet north and 1388 feet west SEc 24-16n-12w. On the southwest flank of the same structure Prairie River Syndicate spudded a 9000-foot test during the week in Section 3-15n-12w, Caddo Parish.

One mile northeast of production at Bear Creek, Bienville Parish, Hunt Oil Company's Southern Advance Company 1, 300 feet east of C 36-17n-6w, drilled at 6269 feet. Hunt is trying to unitize acreage in this area. In this same township and in Ranges 5, 6 and 7 west, Arkansas Fuel Oil Company has a geophysical unit at work. The same company's geophysical survey of an area in Townships 12 and 13 north, Ranges 2 and 3 east, Caldwell Parish, continues. It is ready to spud an 8000-foot test on acreage it holds in that vicinity.

E. T. Oakes and F. W. Fitch's Sallie Lloyd 1, SW SW 10-20n-5w, on the southwest edge of the Lisbon field, Claiborne Parish, was preparing to make production test at 5364 feet after logging 11 feet of fairly well saturated basal Glen Rose lime. Five and one-half inch casing was cemented at 5347 feet. A. O. Olsen is rigging to deepen L. O. McMillan's Roberta Vaughn 1, NW NE 36-21n-5w, from the 5300-foot level at Lisbon to 8500 feet in the lower Marine.

The Cotton Valley field, Webster Parish, with 9 drilling operations, failed to list any completions last week. Two of the tests are below 8200 feet. Seaboard Oil Corporation continues to assign acreage to H. L. Hunt north of Cotton Valley in the southern part of Township 22 north, Range 10 west, and in the northern part of Township 21 north, Range 10 west. At Shongaloo, Webster Parish, Magnolia Petroleum Company's Roseberry Unit 1, CSE 29-23n-9w, cored in oil-saturated lower Marine sand, a core from 9177-82 feet having shown average porosity of 13 percent. This is a sidetracking job, the well having been once completed as a small oil well but condition of hole necessitated sidetracking. Stanolind Oil & Gas Company's Dillon Heirs 131, C SE NE 14-21n-15w, lower Marine test at Pine Island, Caddo Parish, was below 6169 feet, being drilled "tight" since that depth.

North Louisiana Completions

Company Well and Location	Init. Prod. Bbls.	Depth
Bienville Parish (Lake Bisteneau)—		
Ark. La. Gas Co., Long Bell 1, 14-16n-10w	¶66½	5190
Bossier Parish (Sligo)—		
H. M. Harrell, Thompson 1, 20-17n-11w	¶18	5690
Caddo Parish (Shreveport)—		
Harry Fotiades et al, Bath 1, 3-17n-14w	270	5605
J. M. Harper, Jr., et al, A. L. Waller 1, 25-18n-14w	168	5574
Hurricane Pet. Co., DeSoto 2, 26-18n-14w	240	5563
Caddo Parish (Rodessa)—		
W. C. Feazel et al, Caddo Merc. Co. 1, 5-23n-15w	384	6140
Catahoula Parish (Wildcat)—		
Ross Morel et al, Ballard Est. 1, 8-9n-7e	*	3257
Claiborne Parish (Sugar Creek)—		
Union Prod. Co. et al, Tony Durrett et al 3	¶30	5789
Grant Parish (Wildcat)—		
R. Green Smitherman, Jr. et al, Urania Lbr. Co. 1, 1-5n-3w	*	3837

*Failures; †Junked; ¶Million cu. ft. gas.

Arkansas Fields

Four new wells put on production at Magnolia

El Dorado, Ark.—Four new oil wells were completed last week in the Magnolia field, Columbia County, Arkansas' most active district, to bring to 50 the number of producers there. Two of the new wells were still flowing into tanks without gauge.

The Schuler field also added one new well, Lion Oil Refining Company's Clay 3, SE SW 12-18-18, completed at 7690 feet in the Jones (Lower Marine) sand but it also was ungauged. Three other drilling operations are under way in this field which with their completion will have but a few additional locations to drill as its limits have been defined.

A wildcat test on a geophysical prospect in Columbia County was being abandoned August 10 at Twin Cities Syndicate's Hollingsworth 1, NW SW 31-17-18 after a core in the Smackover lime, topped at 7802 feet, showed salt water at 7844-54 feet. The test between the Village and Schuler fields, topped Lower Marine at 5584 feet and topped Travis Peak at 4330 feet. Elevation is 271 feet.

Another geophysical wildcat prospect in the same county, Atlantic Refining Company's Pine Woods Lumber Company 1, C NE NE 16-18-22, drilled shale and sand at 8630 feet without having topped the Smackover lime.

East Texas Refining Company and Erwin & Leach did not abandon Bodcaw 1, NE NE 19-16-23, Lafayette County, one-mile north outpost in the Lewisville-Stamps field, as previously reported, after plugging back to 3441 feet after the test showed salt water. Instead, a pumping unit is being installed at the well which gives indications of being a commercial oil well.

Joe Modisett has assigned Stanolind Oil & Gas Company SE and E½ SW Section 12-18-12, adjacent to his newly-started Smackover lime test in Union County, and Phillips Petroleum Company has also secured acreage in the spread.

Arkansas Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Magnolia)—		
Atlantic, Foster 2, 24-17-20	384	7540
Mid-Continent, Foster 1, 24-17-20	536	7613
Franklin County—		
Ozark Nat. Gas Co., Alstatt 1, 34-10n-26w	¶5	2140
Nevada County (Troy)—		
Benedum & Trees, McRae 1, 4-14s-20w	45	2100
Ouachita County (Smackover)—		
J. E. Crosbie, Laney 2 36-15s-16w	15	2780
Union County (Rainbow City)—		
Sam Sebersky, Jerry A-2, 21-17s-14w	*	3021

*Failures; †Junked; ¶Million cu. ft. gas.

Mississippi Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Rankin County (Jackson)—		
Willmut O&G Co., Boehle 2, 18-5n-2e	*	2470

*Failures; †Junked; ¶Million cu. ft. gas.

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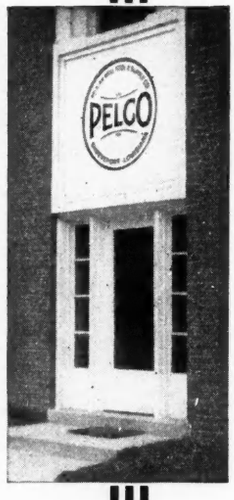

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New Mexico Fields

Lea County threatens to displace Eddy in activity.

Eunice portion of Hardy field extended northeast.

Hobbs, N. M.—Drilling activity in Eddy County has expanded sufficiently in recent months to threaten to displace Lea County as the most active in New Mexico, although the latter has retained the lead for a decade. Development of the Loco Hills, Shugart and the extended portions of older fields in Eddy County has placed it on a par with Lea County on total operations. However, the drilling time in Eddy County is much longer due to the widespread use of machines and the extended period needed to complete wells that drill to water then plug back for nitro shots. Lea County offers a contrast in that wells are completed in deeper zones with rotary, or combination rig in less time, resulting in a larger quota of weekly completions.

The spread of the Loco Hills area to the west was interrupted when Continental Oil Company and S. P. Yates' Travis 1, SE SE SE 3-18s-29e, tested water with oil in regular sand, topped at 2620 feet. This zone was excluded in landing 5½-inch pipe at 2685 feet, and the test was drilling gray lime at 2850 feet. Martin Yates and Continental Oil Company's Brainard 1, NE NE NW 11-18s-29e, southwest outpost that has been in process of completion for several weeks, flowed 8 barrels of 36.7-gravity oil per hour through ¾-inch tubing choke. Production is from broken pay at 2639-2701 feet, and the well was shot with 140 quarts of nitro at 2639-68 feet. The Texas-New Mexico Pipe Line Company is to provide a connection for the oil to be run for the account of Sinclair Prairie Oil Marketing Company. The latter is the largest buyer in Eddy County, and its revised posting calls for a flat price of 57 cents per barrel.

Lea County accounted for 11 new operations the past week, with the Vacuum field contributing 7 of the total. Magnolia Petroleum Company staked three of the latter, including State-Bridges 40, C NE NE 14-17s-34, ¼ mile northwest of its discovery producer, which is the most northerly well. The company is also starting operations on State-Bridges 41, C SE SE 23-17s-34e, and State-Bridges 42, C SW SE 27-17s-34e. The completion of State-Bridges 37, C NE SW 14-17s-34e, with an initial flow of 87 barrels in 5 hours at 4642 feet, provided a minor northwest extension. Phillips Petroleum Company authorized the drilling of State-Santa Fe 32, C NW NE 33-17s-35e, and State-Santa Fe 33, C NE NE 5-18s-35e. Getty Oil Company's State 1-H, C SW SW 33-17s-35e, a new test, was drilling at 780 feet. Drilling & Exploration Company's State-Shell 2-W, NW SW SE 26-17s-35e, is an indirect offset to a dry hole on the extreme east edge of production.

The Eunice Townsite sector of the Hardy field was advanced to the northeast when Magnolia Petroleum Company's Marshall 4, C NE NW 34-21s-37e, responded to 250-quart nitro shot at 3643-3743 feet with a potential gauge of 74 barrels of oil in 2½ hours. It will require three offsets. Two late completions in the Mattix area experienced delays because of excessive gas yield.

Phillips Petroleum Company and Pure Oil Company's Woolworth 8 gauged 208 barrels of oil in 6 hours after nitro shot at 3534-3565 feet converted the well from an apparent gasser with light oil spray. Continental Oil Company et al's Jack 2-A-29, also an inside location, was throttled to 37 barrels of oil in 14 hours through 30/64-inch choke with gas volume rated at 300,000 feet daily, by installing tubing packers. Production is from sandy lime at 3500-70 feet. This well showed for a large oil and gas yield when originally tested through casing with drill pipe in hole.

Humble Oil & Refining Company's Williams 5, C NW NE 34-34s-37e, an east edge test, was drilling at 500 feet.

Texas Pacific Coal & Oil Company has moved in its own rig to drill State 8-A, Account 1, C SW SE 21-23s-36e, half mile from production between the Lynn and Cooper fields.

Activity in the Lovington pool increased to 8 operations with the starting of work on United Producers' Caylor 2, C N½ SE NW 6-17s-37e. With one exception, each will require from one to three direct offsets if productive. In the Penrose field, Clower et al's Christmas-Gulf 3-D, SE SE NW 28-22s-37e, has spudded with machine.

Yates spacing change

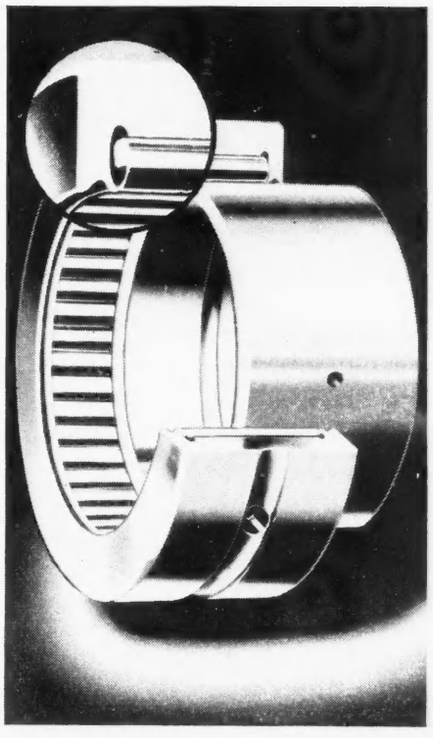
The Texas Railroad Commission has revised its order in the Yates field, fixing 50 acres as the standard proration unit. Smaller tracts are to be treated as fractional units and given proportionate allowables until they reach 20 acres. Tracts of 20 acres or less are to be treated as a half unit.

The order likewise established as a full unit a tract of 24.41 acres owned by Pecos Producers, Incorporated. This was the only exception which has been made in the Yates field.

New Mexico Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County—		
Martin Yates & Continental, Brainard 1, ne ne nw 11-18s-29e	192	2701
Lea County (Eunice)—		
Cities Service, State 1-N, ne se sw 2-22s-36e	2640	3820
Gulf, Mattern 7-E, sw se ne 12-22s-36e	907	3755
T. P. Coal & Oil Co., State 18-A, ne sw ne 11-22s-36e	1560	3800
Lea County (Mattix)—		
Continental et al, Jack 2-A-29, ne ne se 29-24s-37e	63	3570
Phillips-Pure, Woolworth 8, c nw ne 33-24s-37e	832	3565
Lea County (Penrose)—		
Clower et al, Christmas-Gulf 2-B, se ne sw 28-22s-37e	170	3688

*Failures; †Junked; ¶Million cu. ft. gas.



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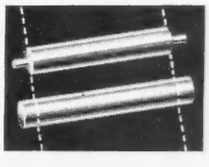

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Rocky Mountain Area

Contract let for deep test in Rattlesnake field.
Garland field well does 615 barrels in two hours.

Casper, Wyo.—Continental Oil Company has let contract and is moving in equipment for Tribal 100, a deep test of the Rattlesnake field, San Juan County, northwestern New Mexico. Location is in SE NW NE 2-29n-19w, about 1¼ miles north of where the company had drilled 2 previous tests to the Pennsylvanian, the deeper going to 7370 feet. Rotary contract let to Manning & Martin, Incorporated, of Denver, calls for a depth of 7500 feet.

Rattlesnake field, 14 years old, had produced 4,065,418 barrels of crude oil to the end of 1938, of this, 252,354 barrels were produced during 1938. Production is from the Dakota sands at 784 to 808 feet.

In Wyoming, J. W. Bales and associates are moving in for a test of the Lysite Mountain anticline in Hot Springs County. Location is in Section 21-43n-90w, and cable tools will be used. First objective is the Dakota sand at 1000 feet; second objective is Madison lime, expected at about 4000 feet.

One of the largest completions in Garland field, Big Horn County, northern Wyoming, was brought in this week when Ohio Oil Company's Hannah-Davis-Syverson 1, Lot 53, SW NW 34-56n-97w, showed for 615 barrels of Madison lime oil in 2 hours through the 7-inch casing. Depth is 4045 feet. The well is producing at 105 barrels hourly through 38/64-inch choke on the 2-inch tubing. The well is an outside location on the southeast side of the field. Rocky Mountain Gas Company, a subsidiary, is moving in rotary for Hannah-Davis-Syverson 2, SW NW 34-56n-97w.

On the south fault block of Byron field, Libby-Keoughan et al's Sheets-Government 1, SE NE SE 9-55n-96w, Big Horn County, Wyoming, is nearing critical depth drilling at 3982 feet and feeling for the Peavy sand. Five wells started in Lance Creek field, Niobrara County, Wyoming, this week as drilling activity continued to increase in that field under stimulus of new pipe line and marketing outlets.

C. L. Price, who a year ago extended Lance Creek Leo sand limits ¼ mile west on the southwestern side of the field, is digging cellar for Lamb 2, CSE NW NW 7-35n-65w. Continental Oil Company is waiting on cement to set around 13-inch O.D. casing at 320 feet in its Apex 5 OPC-4, CN N 35-36n-65w, with total depth at 325 feet. The well is an eastside location in the newly opened Sundance pool beyond older production limits.

In southwestern Wyoming, Mountain Fuel Supply Company developed a heavy flow of gas through drill stem at 3388 feet in Clark 1, SEc NW NW 12-19n-104w, North Baxter Basin field, Sweetwater County. The company is running 7-inch casing to 3388 feet, top of the Sundance, and preparing to test. Total depth is 3392 feet.

Nearing the objective Morrison sand is The California Company and The Texas Company's Unit 2, NW SE SW 27-3n-94w, Wilson Creek field, Moffat County, northwestern Colorado. The well is just across the crest of the structure from Unit 1, which showed for 65 barrels an hour initial in the early part of 1938 for last year's most important Rocky Mountain find.

Mountain States Completions

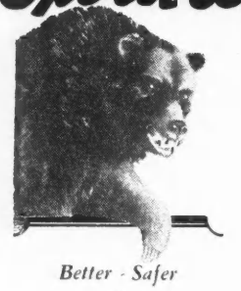
MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
Glacier County (Cut Bank Field)—		
Glacier Prod. Co., Thayer 1, cnw ne 28-33n-5w	74	2968
Texas Co., State 4, cnw nw 16-32n-5w	125	2995
Toole County (Kevin-Sunburst Field)—		
Coolidge & Coolidge, Shaw 7, nec se ne 35-36n-5w	45	1525

WYOMING

Big Horn County (Garland Field)—		
Mule Creek Oil Co., Sessions 1, sw nw nw 34-56n-97w	180	4059
Niobrara County (Lance Creek Field)—		
Continental, 4 Apex OPC-3, nw ne sw 34-36n-65w	450	4073
4 Apex OPC-4, se se nw 35-36n-65w	100	4296
Weston County (Osage Field)—		
Butcher Bros. 2, cnl sw ne 16-46n-63w	2	200
Des Moines-Osage Gas & Oil Co., Ost 4, cwl sw se 25-45n-64w	20	1521
Updike Bros., 7, se nw sw 25-46n-64w	25	1658

*Failures; †Junked; ¶Million cu. ft. gas.



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GRIZZLY BRAKE BLOCK BAND EXCHANGE

California Fields

Wildcat may link Tupman and Coles Levee fields. Thin sand body yields big well at East Coalinga.

Los Angeles. — Possibility of Coles Levee and Tupman fields, Kern County, being joined to form one of the world's larger single petroleum reservoirs is seen as a result of showings encountered in Richfield Oil Company's Western 2B-14-3, situated midway between the two fields and in Section 3-31-25. This wildcat, standing cemented, is bottomed in a shale at 9432 feet, above which it cored oil sands.

Tupman, a relatively new field itself with only two producers, lies north of Richfield's test. The third potential producer there, Standard Oil Company of California's KCL 21-1 in Section 19-30-25, has had sand showing oil, but will be deepened below 9900 feet to take in sand productive in the two former wells and to obtain, if possible, information substantiating a current theory regarding possibility of the shoreline deposit extending around westward to Elk Hills field.

Another San Joaquin Valley wildcat, Western Gulf Oil Company's Panhandle 1, Section 3-32-26, Buena Vista district, will be deepened before getting a production test of formation below 10,121 feet, at which point it tried to blow out.

Although only 30 feet of zone was opened, Amerada Petroleum Corporation's No. 26-17, northwest of East Coalinga Eocene pool, was good for approximately 3200 barrels of high gravity oil per day from 9000 feet. Because the zone was considerably lower and thinner than that in the discovery well, more time was required to complete this project.

Wilshire Oil Company is preparing to drill an outpost southeast of South Rio Bravo field. Campen 1, SEc Section 1-29-25, is expected to shorten the gap between Rio Bravo and Greeley. A mile south of Wilshire's new test, General Petroleum Corporation's Sullivan 1, searching for an extension of Greeley, is drilling below 8300 feet in sand and shale and has yet to core into the Greeley zone.

San Miguelito field, Ventura County, yielded an excellent producer last week when Continental Oil Company brought in Grubb 11, Section 24-3-24, for an initial flow of 1270 barrels of 31-gravity oil per day from a depth of 6972 feet. Flow is through a 6/64-inch choke, with 110 pounds tubing pressure and 605 pounds on the casing. Gas flow exceeds 1,000,000 cubic feet.

West Montebello continues to lead Los Angeles Basin in activity. Last week, John McKeon and associates brought in Cowan 1 for 1500 barrels of oil per day at 7646 feet and extended the field ¼ mile southeast. Wood-Callahan Oil Company's Bartlett 1, which started flowing approximately 1000 barrels daily from 7650 feet, is yielding some water and the operator is trying to determine source. The Texas Company has staked location for Roy F. Wilcox 1, a westerly outpost.

Three new starts reported in Arizona

Phoenix, Ariz.—Two new locations in Maricopa County and one in Yuma County featured Arizona activity during the past week. Leggo Drilling Company staked Battles 1, Section 25-1n-4w, Maricopa County, while Ben Case made location for Johnson 1, Section 12-1s-5w, in the same county. Yuma Valley Gas & Oil Company's Musgrove 1 was spudded and drilled to 500 feet; it is in Section 11-11s-25w, 100 yards north of the International Boundary, in Yuma County.

Other developments were few. Samuel F. Reaves' Fuqua 1, Maricopa County wildcat, cemented 8⅝-inch casing at 1650 feet and was drilling at 2700 feet. In Cochise County, Funk Benevolent Corporation's Fee 1 was coring at 6626 feet. In Apache County Rincon Drilling Syndicate's State 1, recent result of an active northeastern Arizona lease play, was drilling at 500 feet.

California Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Los Angeles County (Aliso Canyon)—		
Tide Water Associated, Porter 11	1474	5239
Los Angeles County (West Coyote)—		
Severns Drilling, McNally 4	416	7016
Los Angeles County (Dominguez)—		
Union, Callender 69	401	7725
Callender 70	950	7355
Los Angeles County (Long Beach)—		
A. S. Johnston Drilling, No. 38	88	4579
Los Angeles County (Montebello West)—		
Beverly Montebello Oil, Beverly 1	1120	7660
Kem Oil, Eggleston 2	806	7161
Monterey 25	1030	7659
John McKeon & Assoc., Cowan 1	1500	7646
Star Petroleum, Banks 1	1350	7651
Union, La Merced 31	957	7640
Los Angeles County (Rosecrans Athens)—		
Howard Oil Associates, H. O. 1	115	7644
Los Angeles County (Seal Beach)—		
Hellman Estate, No. 4	1085	5579
Los Angeles County (Torrance Extension)—		
D. & B. Oil, D. & B. 5	105	5351
Los Angeles County (Torrance)—		
Standard, Marble 1-10	42	4970
Riviera Petroleum, Bass & Goodnight 1	*	5655
Los Angeles County (Wilmington)—		
Long Beach Dev., "Y" (LB) 7	475	3830
"Z" (LB) 3	45	2875
Union Pacific, UP (LB) 111	238	3872
UP (LB) 112	533	3988
UP (LB) E-18	69	3585
Fresno County (Coalinga Northeast Area)—		
Amerada Petroleum, S.P.L. 26-17	3190	9000
Kern County (Coles Levee)—		
Ohio, KCL 43-11	458	9611
Kern County (Kern River)—		
D. B. K. Company, No. 5	12	385
Kern County (Mountain View-South)—		
Standard, Jewett 2-4	1340	6110
Ventura County (San Miguelito)—		
Continental, Grubb 11	1380	6972
Ventura County (Ventura Avenue)—		
Tide Water Associated, Hartman 8	500	8810
McGonigle 14	148	10,975
Kern County (Lost Hills)—		
California Lands, Inc., Occidental 2	*	8320
Kern County (Fruitvale)—		
Western Gulf, KCL B-42	*	2955
Ventura County (Orcutt)—		
O. C. Field Gasoline, Corporation 1	*	7382

*Failures; †Junked; ¶Million cu. ft. gas.

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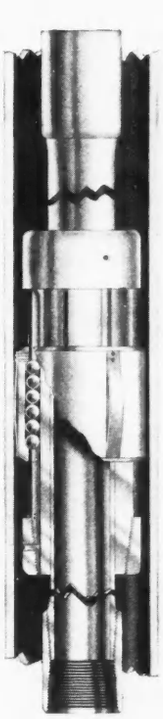

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Cross Sectional View

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Michigan Fields

Kent County continues to contribute most flush oil

Mt. Pleasant, Mich. — Completions totaled 38 the current week as against 19 last week with only 6 outside of the southwestern part of the state. Of the 8 wildcats completed none made commercial wells.

Kent County contributed the bulk of new flush production with five 1800-foot wells initialing over 1000 barrels per day.

Rex Oil & Gas Company's City of Grand Rapids 1, Section 3-6n-12w, on the southeast end of the developed Walker field, marked the first "cashing in" directly by the city in the Kent County boom.

The city leased the 22-acre tract to Rex on a straight ⅛ over-ride royalty without cash consideration. Well initialed 1300 barrels natural. The field, as developed, is within 1½ miles of the metropolitan area.

Twin Drilling Company, which has been drilling both its own acreage and as a contractor in southwestern Michigan, this week moved in a portable rotary, the first of this type equipment ever to be used in Michigan. Conventional rotary has been used in the Walker field as elsewhere in Michigan on a small scale.

Century Oil & Gas Company's Siskaninetz 1, Section 11-4s-14w, Decatur Township, Van Buren County, was the most interesting wildcat of the week with a gas show reported in the top of the Sylvania sand at 1405-07 feet, where casing was set to shut off upper water sands.

Michigan's "thumb" district, discovered in 1937, may get more action as the result of a 250-barrel natural completion this week in the Monroe lime at 3433 feet. Completion was made by Norman Carr, one of the discoverers of the area, on Black 1, Section 24-14n-7e, Tuscola County. It was by far the best of five previously completed producers, which ranged from 20 to 80 barrels each.

Michigan Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
McKenna Oil Co., Balch 1, se sw ne 19-2n-15w	*	1283
American Drlg. Co., Duryea 1, ne nw sw 23-3n-12w	15	1656
Allegan Crude, Vandrwide 1, nw nw ne 12-4n-14w	*	1660
Socony Vacuum, Loew 3, nw sw se 3-4n-13w	125	1633
Weber 6, nw ne ne 11-4n-13w	645	1606
Redman Oil Co., Twining 1, nw ne se 3-4n-13w	65	1651
Muskegon Dev. Co., Homrich 3, ne se ne 11-4n-13w	50	1581
Salem Oil Co., Brenner 1, sw se sw 14-14n-13w	125	1656
Glen McCoun, Stewart 1, se nw se 10-1n-13w	*	1648
Arenac County—		
W. E. Ross, Buhl 1, c ne ne 8-20n-4e (98,000 ft)	¶	1220
Cass County—		
Lester Shimmel, Simpson 1, se sw sw 20-7s-13w	*	862
Clare County—		
C. L. Maguire, Barlow 3, c s nw se 3-18n-6w	450	3889
Taggart Bros., Fadke 10, c ne 13-18n-6w	*	1562
Kalamazoo County—		
McClanahan Oil Co., Sweet 1, sw se sw 27-3s-11w	*	1291
Kent County—		
C. W. Teater, Hendershott 1, nw sw ne 29-8n-12w	*	2225
Gordon & Basins, Wildeb ar 1, ne ne nw 31-7n-12w	200	1868
Gordon Oil Co., Snyder 1, se se ne 32-7n-12w	50	1927
Smith & Strom-Wagners, Gilvert 5, ne ne sw 4-6n-12w	1600	1781
Lenoran Pet. Co., Maynard 3, sw sw nw 4-6n-12w	1200	1819
Crown Dev. Co., Johnson 4, ne ne ne 5-6n-12w	500	1779
Swanson Consolidated, Van Dyke 5, se sw ne 5-6n-12w	500	1776
Rex Oil Co., City of Grand Rapids 1, nw nw sw 3-6n-12w	1200	1764
C. A. Welch, P.M.R.R. 2, sw se nw 3-6n-12w	1300	1765
Lamar Oil Co., Gravel Co. 1, nw ne se 4-6n-12w	1400	1760
Tamblyn Dev. Co., Nulty 1, ne ne nw 14-6n-12w	*	1911
Montcalm County—		
Pyramid Oil Co., Longnecker 1, c n sw ne 13-12n-6w	*	3545
Belvidere Oil Co., Barber 1, ne sw ne 26-12n-6w	¶13	1256
Ottawa County—		
Rowland Hill, Hunter 1, sw ne sw 25-5n-13w	*	1673
Hugh G. White, Rodenhiser 1, ne ne sw 36-5n-13w	*	1744
Tuscola County—		
Norman Carr, Black 1, se sw se 24-14n-7e	210	3433
Van Buren County—		
Blood & Hendershott, Jackson 2, se se se 20-2s-16w	25	1007
Rex Oil Co., Stockton 1, se sw se 2-1s-15w	25	1168
J. H. Fitchett, Fox 3, nw ne ne 13-1s-15w	240	1202
O. O. Borden, Parisian 4, ne sw ne 13-1s-15w	400	1208
Daily Crude Oil Co., Potter 2, sw nw ne 13-1s-15w	30	1206
Bridger Basin, Preston 2, sw nw ne 13-1s-15w	600	1204
Turner Pet. Co., Lee 1, sw nw nw 25-4s-13w	*	1177
M. M. Rozan, Lulu 1, nw sw ne 34-2s-14w	*	1134

*Failures; †Junked; ¶Million cu. ft. gas.

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WILDCAT REPORT
New Starts and Completions

ALABAMA
FIRST REPORTS

Barbour County—W. B. Hinton, Fee 1, 14-9n-26e, moving in materials.

CALIFORNIA

Los Angeles County—Citizen's Oils Dunn 1, lcn 500 ft n, 150 ft w c/ls Main and Olive streets, Gardena.

Kern County — Tide Water Associated's Strand-KCL-E-46-7, foundation, 1650 ft n, 310 ft e swc 7-30-26, Strand area.

COLORADO
FIRST REPORTS

Moffat County — Iron Springs Petroleum Company's Beckett 1, se se se 9-9n-93w, mi ct for 4000 ft test in Iron Springs structure.

FLORIDA
FIRST REPORTS

Dade County—Wm. G. Blanchard et al's Everglades 1, 200 ft e and 100 ft n swc 31-53s-35e, lcn.

ILLINOIS
FIRST REPORTS

Bond County—E. J. Grobschmidt's Simon Plog 1, nw se 8-5n-5w, lcn. George Weinschell's Ridkler 1, sw sw sw 6-4n-4w, loc.

Clinton County — J. J. Farrelly et al's George Bergman 1, nw nw 25-1n-4w, dr. Snell & Goldschmidt's N. Schaefer 1, sw ne nw 33-2n-3w, rig up for McClosky test.

Douglas County—Lewellen & Phillips' Kennedy Bros. 1, ne nw sw 34-16n-9e, dr.

Franklin County—Phillips Petroleum Co.'s Boyles 1, ne se se 19-5s-3e, loc.

Jasper County—Siberling et al's Freeland 1, 600 ft from east line and 660 ft from south line, sw nw 15-8n-14w, dr.

Lawrence County—Joe Kessel et al's Grace Gillespie 1, ne sw nw 24-4n-11w, standard rig.

Marion County—A. J. Delano's Sherman Townsend 1, sw nw nw 13-2n-2e, McClosky test, waiting on cement with surface casing set. Florence Oil Corp.'s Suggs-Meeker 1, 650 ft from north line and 220 ft from west line, nw 11-2n-1e, old well being deepened from 1745 ft, rig up for McClosky or Devonian test. Jay Lickey et al's (formerly Palmer) Adams 1, ne sw nw 3-1n-1e, old well being deepened from 1632 ft, had Cypress top at 1600 ft, dk up for McClosky test.

Monroe County—Borden & Ipperson et al's Schuster 1, nw nw sw 13-3s-8w, moving in materials. J. Stewart et al's E. Havey 1, nw ne sw 11-3s-9w, drilling at 900 ft. Kesl et al's A. Schmidt 1, c nw 11-2s-11w, drilling.

Perry County—Kingwood Oil Co.'s Broleman 1, 200 ft from west line and 330 ft from south line, sw se sw 17-5s-1w, loc.

Richland County—Pure Oil Co.'s Homer C. Coen 1, se se se 36-5n-9e, Denver tnp, rig.

Tazewell County—H. V. House's Greening 1, nw nw se 28-24n-2w, rig.

Wabash County—C. D. Neff's W. Litherland 1, sw sw nw 8-1n-12w, derrick up for deep test in Allendale pool.

Washington County—Pres Cochrane et al's J. Orlick 1, se se se 11-3s-1w, loc.

Wayne County — Whitcher Development Co.'s W. Frederick 1, nw sw nw 12-1n-8e, spud.

Williamson County—J. H. Williams et al's Smothers 1, 900 ft from south line and 66 ft from east line, ne 9-9s-2e, dk.

COMPLETIONS

Clark County—Harry Dunn et al's Henry Medsker 1, ne ne 7-9n-12w, Mulrose tnp, abnd 742 ft. H. R. Snavely et al's S. M. Schoffield 1, se ne se 6-11n-11w, Wabash tnp, abnd 875 ft.

Crawford County—Snavey et al (Anderson) Hostettler 1, sw sw sw 31-8n-11w, Hutsonville tnp, abnd 1400 ft.

Edwards County—Kingwood Oil Co.'s Johnson 1, se se ne 18-3s-11e, top Glen Dean 2490 ft, top Fredonia 3116 ft, flowed 30 bbls oil an hour on first test, td 3270 ft.

Madison County—Bill Morgan et al's Niggli 1, ne se se 2-3n-5w, Helvetia tnp, top Bethel 867 ft, top St. Louis 1064 ft, abnd 1092 ft.

Moultrie County—George Anderson's Ulrich 1, c w½ nw 29-15n-5e, Lovington tnp, top Benoist 1645 ft, top Aux Vases 1695 ft, abnd 1773 ft.

Saline County — Coastal Producers, Inc., Choisser 1, ne nw nw 5-8s-7e, Eldorado tnp, top Menard 2135 ft, top Waltersburg 2140 ft, abnd 2142 ft. T. D. Haypenny's M. W. Swinney 1, c sw sw nw 1-9s-7e, Cottage tnp, top Cypress 2460 ft, abnd 2784 ft.

Williamson County—J. Curtis Starr's (Star Oil Co.'s), Shoemaker 1 (Carney Coal Co. 1), c se nw 21-9s-4e, top Benoist 2710 ft, top Fredonia 2753 ft, top St. Louis 2855 ft, abnd 2890 ft.

STATE	WILDCATS STARTED		WILDCAT TESTS COMPLETED							
			Total		Oil		Gas		Dry	
	This Week	This Year	This Week	This Year	This Week	This Year	This Week	This Year	This Week	This Year
Alabama	1	4	...	1	...	...	...	...	...	1
Arkansas	...	25	...	15	...	1	...	...	...	14
California	2	146	...	68	...	20	...	2	...	46
Colorado	1	2	...	1	...	...	...	...	...	1
Florida	1	2	...	1	...	...	...	...	...	1
Georgia	...	3	...	1	...	...	...	...	...	1
Illinois	21	371	8	268	1	19	...	...	7	249
Indiana	6	29	...	22	...	8	...	1	...	13
Kansas	2	159	5	149	...	48	...	4	5	97
Kentucky	7	18	1	14	...	7	...	...	1	7
Louisiana	6	80	4	64	1	11	...	1	3	52
North Louisiana	3	28	3	20	...	3	...	1	3	16
South Louisiana	3	52	1	44	1	8	...	...	...	36
Michigan	9	152	9	199	...	15	...	...	9	184
Mississippi	1	9	...	5	...	...	...	...	...	5
Missouri	2	35	2	5	...	...	...	...	2	5
Montana	...	2	...	2	...	...	...	...	...	2
Nebraska	...	1	...	1	...	...	...	...	...	1
New Mexico	1	25	...	16	...	1	...	1	...	14
New York	...	...	...	3	...	1	...	1	...	1
Oklahoma	4	120	3	118	...	14	...	5	3	99
Ohio	...	4	...	9	...	1	...	...	...	8
Pennsylvania	...	3	...	2	...	...	...	...	...	2
South Dakota	...	2	...	...	...	...	...	...	...	...
Texas	21	686	34	734	1	70	2	12	31	652
East Texas	4	78	4	69	...	3	...	1	4	65
North Texas	2	91	4	145	...	24	...	1	4	120
Gulf Coast	1	73	4	61	...	5	...	1	4	55
Panhandle	...	7	...	6	...	...	...	...	...	6
South Texas	12	302	17	329	1	24	1	7	15	289
West Texas	2	135	5	133	...	14	1	2	4	117
Utah	...	1	...	...	...	...	...	...	...	...
West Virginia	...	2	...	1	...	...	...	...	...	1
Wyoming	...	4	...	1	...	...	...	...	...	1
Total U. S.	85	1,886	66	1,707	3	216	2	27	61	1,464

INDIANA
FIRST REPORTS

Daviess County—Hartman et al's White 1, c w½ nw nw sw 22-2n-7w, rig.

Gibson County — Longhorn Oil Co.'s McCarthy 1, c nw se nw 13-2s-11w, dr. W. F. Lacy et al's Julian 1, c ne nw se 26-3s-14w, moving in materials.

Knox County—Richard Young's C. McLinn 1, Township 1n-12w, Decker Tnp, dk.

Lawrence County—Ivan Montgomery's C. C. Salmon 1, 325 feet from south line and 500 feet from east line, sw sw 2-2n-3w, loc.

Posey County — Ray Ryan & Morgan Brown's 1, c se sw 30-7s-14w, loc.

Tipton County—Fred Eastman's S. Vandeventer 1, 300 feet from south line and 330 feet from west line, se sw 21-21n-3e, loc.

KANSAS
FIRST REPORTS

Barton County — Triangle Drilling Co.'s Breford 1, csl se sw 25-16s-11w, rur.

McPherson County—Bennett's Peterson 1, csl nw nw 32-20s-5w, lcn.

COMPLETIONS

Butler County—Lucas et al's Lucas 1-A, ne nw nw 14-28s-6e, 3 mi e Pettit pool, abnd 1525 ft.

Greenwood County — Reed's Sowders 1-A, nec sw 31-25s-13e, n Neal gas pool, so 1580-85 ft, top Mississippi 1576 ft, abnd 1611 ft.

Reno County—Dutton et al's Green 1, sec 8-23s-4w, spudded and abnd.

Rice County—O-Kansas Drilling Co. et al's Shonyo 1, swc ne 34-18s-9w, e Ploog pool, top Lansing 2903 ft, top Conglomerate 3259 ft, top Simpson 3260 ft, top Arbuckle lime 3306 ft, abnd 3316 ft. Vickers Petroleum Co.'s Rodenberg 1-A, cnl nw 8-18s-10w, s Stumps pool, top Lansing 2930 ft, top Conglomerate 3227 ft, top Arbuckle lime 3265 ft, abnd 3296 ft.

KENTUCKY
FIRST REPORTS

Breckenridge County—McDonough & Mecca Oil Co.'s Frank Dean 1, 1600 ft from west line and 3300 feet from south line, Section 19-0-35, dr. Lion Oil & Refining Co.'s Fannie McCoy 1, 2700 ft from north line and 400 ft from east line, Section 16-P-38, sp. Donald Coleback's Joe Moorman 5, 600 ft from west line and 300 ft from south line, Section 24-0-36, top Vienna 8 ft, top Tar Springs 12 ft, top Glen Dean at 90 ft, dr 200 ft.

Daviess County—Finwill Drilling Co.'s Sam Sloane 2, 1600 ft from west line and 1000 ft from south line, Section 10-0-31, dr.

Henderson County — Belmont Quadrangle Drilling Corp.'s W. M. Watkins 1, 1800 ft from north line and 1300 ft from east line, Section 24-P-24, rig.

McLean County—Lucky "13" Oil Co.'s T. S. Conrad 6, 1800 ft from east line and 2700 ft from north line, Section 3-L-28, old well being deepened from 1626 ft, Bethel sand, dr at 1680 ft.

Webster County—Smith & Toome's O. H. Parker 1, near Wrightsburg, dr.

COMPLETIONS

McLean County—H. H. Schwartz' Traylor-Frissee 1, 3 mi southwest of Beech Grove, water in 4 ft of McClosky, top 1231 ft, abnd 1235 ft.

NORTH LOUISIANA
FIRST REPORTS

Caddo Parish—Davis & Crabtree's W. H. Keith 1, ce½ se 9-15n-15w, moving in materials.

Catahoula Parish—S. S. Alexander's A. Peck 1, sw ne 33-11n-8e, rig.

Caldwell Parish—Arkansas Fuel Oil Co., La. Cent. Lbr. Co. 1, sw se 36-12n-2e, moving in materials.

COMPLETIONS

Catahoula Parish—Ross Morel et al, Ballard Est. 1, se ne sw 8-9n-7e, elev 61 ft, top Wilcox 3039 ft, abnd 3257 ft.

Grant Parish—R. G. Smitherman, Jr., et al, Urania Lbr. Co. 1, se nw 1-5n-3w, elev 80 ft, top Cockfield 1605 ft, top Sparta 2541 ft, top Cane River 3104 ft, top Wilcox 3506 ft, abnd

Grant Parish—Longwood O&G Co., Thompson 1, 1890 ft s and 4815 ft w 5-5n-3w, dry abnd 5050 feet.

SOUTH LOUISIANA
FIRST REPORTS

Lafourche Parish — Gulf's Grandison 2, Grandison prospect, 3080 ft s, 2100 ft e of nwc sec 21-20s-23e, mim.

Orleans Parish—W. T. Burton's State Lake Catherine 3, 9645 ft w, 2900 ft s fr U. S. Coast and Geo. Sur Station, "water tank and L. & N. RR." or 560 ft due w of L. & N. R. R. 1, lcn.

St. John Parish—Pan American's Mills 1,

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LaPlace prospect, 1680 ft w, 466 ft n of sec sec, 12-11s-7e, mim.

COMPLETIONS

Iberia Parish—The Texas Co.'s State 3-B, Vermilion Bay, 14,007 ft s and 16,339 ft w of sec of sec 20-15s-6e, 16s-5e, topped salt 5920 ft, set 9⅝-in csg 7705 ft, 7-in csg 10,217 ft, comp. 300 bbls 31.9 gravity oil daily 10/64-in choke.

MICHIGAN

FIRST REPORTS

Barry County—Sprenger Brothers' Litts 1, se sw ne 23-1n-9w, rig. N. A. Trexler's Baglery 1, ne nw sw 27-2n-9w, rig.

Berrien County — D. Niccum & Friskes' Krieger 1, se nw sw 8-7s-18w, lcn.

Kent County—Jetter Drilling Co.'s Quiggle 1, sw se sw 14-6n-10w, rig. J. B. Northcott's Anderson 1, ne sw nw 22-7n-9w, lcn.

Missaukee County—C. W. Teater's Currie 1, ne sw nw 29-23n-5w, dr.

Saginaw County—Darke Brothers' Butler 1, nw nw ne 11-11n-2e, rig.

Van Buren County—Fisher & McCall's Latham 1, ne ne sw 27-4s-14w, lcn. Fisher & McCall's Witter 1, ne ne nw 13-3s-15w, dr.

COMPLETIONS

Allegan County—McKenna Oil Co.'s Balch 1, se sw ne 19-2n-15w, Traverse 1233 ft, abnd 1283 ft.

Cass County—Lester Shimmel's Simpson 1, se sw sw 20-7s-13w, Traverse 802 ft, abnd 862 ft.

Kalamazoo County—McClanahan Oil Co.'s Sweet 1, sw se sw 27-3s-11w, Traverse 1259 ft, abnd 1291 ft.

Kent County—C. W. Teater's Hendershot 1, nw sw ne 29-8n-12w, Traverse 2105 ft, abnd 2225 ft.

Montcalm County—Pyramid Oil Co.'s Longnecker 1, sw ne 13-12n-6w, Dundee 3525 ft, abnd 3545 ft.

Ottawa County—R. A. Hill's Hunter 1, sw ne sw 25-5n-13w, Traverse 1648 ft, abnd 1673 ft. Hugh G. White's Rodenheisler 1, ne ne sw 36-5n-13w, Traverse 1738 ft, abnd 1744 ft.

Van Buren County—Turner Petroleum Co.'s Lee 1, sw nw nw 25-4s-13w, Traverse 1157 ft, abnd 1177 ft. M. M. Rozan's Lulu 1, nw sw ne 34-2s-14w, Traverse 1078 ft, abnd 1134 ft.

MISSISSIPPI

FIRST REPORTS

Lamar County—Bob Weaver et al's Hines 1, ne 32-3n-14w, dk.

MISSOURI

FIRST REPORTS

Carroll County—Loomis' Henlein 1, c n½ ne sw 31-55n-24w, sd 255 ft.

Macon County—Riddle's Jones 1, c nw nw 16-58n-17w, lcn.

COMPLETIONS

Grundy County—Franklin et al's Vencill 1, nec 20-62n-22w, abnd location.

Platte County—Berry Brothers et al's Rule 1, c sw sw 20-53n-33w, top Burgess 958 ft, top Mississippi 1018 ft, top Kinderhook 1413 ft, top Hunton 1442 ft, top Kimmowick 1655 ft, top St. Peter (Wilcox) 1769 ft, fresh water 1775-86 ft, top Arbuckle 1847 ft, abnd 1857 ft.

NEW MEXICO

FIRST REPORT

Harding County—A. S. Waddell-Casthwait et al's Peters 1-a, c ne nw 10-14n-31e, dr 1040 ft.

OKLAHOMA

FIRST REPORTS

Kay County—McBride's State 1-A, sw ne ne 13-29n-2w, lcn.

McIntosh County—Pine's Marlin 1, c n½ se ne 14-11n-16e, machine.

Okfuskee County—Sands Petroleum Corp.'s Mathews 1, c w½ nw se 5-11n-9e, rig.

Pontotoc County—Smith et al's Kann 1, sec ne 13-3n-4e, dr.

COMPLETIONS

Cotton County—Castley's Ash 1, nw sw se 7-4s-10w, 3 mi sw Temple, abnd 1310 ft.

Jefferson County—Weir's Carmichael 1, nec sw 23-7s-7w, 10 mi sw Spring pool, top Strawn 2806 ft, abnd 4986 ft.

Seminole County—Wood's Aldridge 1-A, sw nw ne 5-8n-8e, 2 mi n Wewoka, top Calvin 1845 ft, abnd 1910 ft.

EAST TEXAS

FIRST REPORTS

Houston County—Aloco Oil Co.'s Z. W. Weisinger 1, 850 ft fr n and 760 ft fr se lines of 84.4-acre tract, and T. H. Barrow sur, 7 mi sw Elkhart, cem surface pipe.

Hunt County—Jennings & Dooley's V. T. Banks 1, 1400 ft fr s and 1770 ft fr w lines of 138.84-acre tract, and J. W. Haynes sur, 5 mi ne Greenville, cem surface pipe.

Limestone County—Murray Samuel et al's C. Barron 1, 440 ft out of swc of 360-acre tract, and W. G. McKinsey sur, 4 mi nw Thornton, mim.

Smith County—James-Martin & Moore's B. H. Lunceford 1, 110 varas w of e and 83 varas s of n lines of 39.7-ac tract, or 520 varas fr e and 83 varas fr n lines of W. Shipp sur, 3 mi nw Garden Valley, lcn.

COMPLETIONS

Ellis County—Compton Oil Co.'s M. L. Van Landingham 1, 200 ft ne of sw and 2450 ft se of nw lines of O. Wheeler sur (south), 3 mi e of Pluto, elev 753 ft, base Austin chalk 140 ft, Woodbine series 500-575 ft, top Paluxy series 1320 ft, abnd 1415 ft.

Henderson County — J. V. Scrivnor and Grover Hart's American Livestock & Feed Co. 1, 900 ft out of nwc of 78-acre tract in w½ blk 14, J. M. Sally sur, 6 mi sw Athens, elev 397 ft, Pecan chalk 2426-2550 ft, Austin chalk 3423-3897 ft, top Woodbine sand 4346 ft (water) and abnd 4398 ft.

Limestone County—Zephyr Oil Co.'s Peeples 2, 480 ft n and 60 degrees w of 2825-foot failure, R. Scott sur, 2 mi sw Tehaucanna, elev 487 ft, Austin chalk 1985-2380 ft, top Woodbine porosity 2590-94 ft, abnd 2650 ft.

Red River County—M. H. Harrell et al (was Watters') J. Phamphlin 1, 1700 ft fr s and 2550 ft fr e lines of Wm. Moore sur, 3 mi se Kanawha, elev 470 ft, top Woodbine red beds 450 ft, abnd 710 ft.

NORTH TEXAS

FIRST REPORTS

Clay County—Clacotex Oil Co. & A. F. Kimmell's W. R. Lyon 1, 1250 ft west and 1300 ft south of m/e/ne corner of J. W. Ringold sur, A-387, lcn for 1300-ft test.

Cottle County—J. H. Burns et al's J. E. Moss 1, 1333 ft fr s and 1322 ft fr w lines nw¼ sec 5, blk L, A. Forsythe sur, 3½ mi s and 8 mi e of Paducah, sp.

COMPLETIONS

Archer County—W. T. Hutcheson, Jr. et al's C. C. Conner 1, 1273 ft fr s and 1192 ft fr w lines blk 109, Harris Club Ranch sub-div., Gunsight lime 1364-70 ft, trace oil in sand 1388-98 ft, abnd 1410 ft.

Clay County—E. Carlisle Norwood et al's H. C. Shipley 1, 1168 ft fr e and 330 ft fr s lnes of north 116 acres of blk 29, Madison C.S.L. sur, A-302, abnd in shale 5066½ ft.

Jack County—Dorian et al's E. E. Farris 1, 150 ft out of sec of John S. Farris sur, A-466, abnd 590 ft.

Montague County—E. B. Madden et al's Harry Smith 1-a, 330 ft fr e and 380 ft fr s lines of most southerly sec of 242-acre tract, H. N. Baker sur, A-49, 1½ miles n and 1½ miles e of Bonita, top of granite wash 4517 to 4570 ft, abnd 4748 ft.

WEST TEXAS

FIRST REPORTS

Tom Green County—H. A. Ringle et al's L. Seal 1, 590 ft fr s and 2730 ft fr w lines sec 137, Washington County Ry. sur, 2 mi s Miles, dr 55 ft.

COMPLETIONS

Jones County — Fain-McGaha Oil Corp.'s J. H. Harris 1, 330 ft out of sec blk 79, league 125, DeWitt County School Lands, hfw 1982-93 ft, trace oil 2470-76 ft, hfw 2775-80 ft, abnd 2905 ft.

Reeves County—Artie Baker et al's J. W. Grider 1, 2490 ft fr s and 2190 ft fr w lines ne¼ PSL sec 31, blk 58, elev 3043 ft, abnd 450 ft.

Tom Green County — Southern Cross Oil Corp.'s Upton & Upton 1, 800 ft fr s and 1320 ft fr w lines sec 20, blk A, AB&M sur, elev 2378 ft, top Clear Fork 446 ft, top Valera anhydrite shale 1664 to 1808 ft, top Ellenberger lime 5480 ft, abnd 5637 ft.

WEST CENTRAL TEXAS

FIRST REPORT

Palo Pinto County—Hickok & Harry Reynolds' R. H. Gauldin 1, 2036 ft fr s and 660 ft fr e lines of L. P. Elder sur, A-1474, sp.

COMPLETIONS

Johnson County — 20th Century Oil Co.'s Davis 1, C. L. Jaco survey No. 29, abst. 469, elev 890 ft, trace oil 1861-76 ft, shot 25 qts nitro and abnd 2186 ft.

Shackelford County — Roeser - Pendleton, Inc.-Continental Oil Co.'s Cook 2-A-89, c nw sec 89, E. T. Ry. sur, Cook sand (gas) 1456-62 ft, hfw 1468-69 ft, pb to 1464 ft, initial 5,000,000 ft wet gas.

POSITION WANTED—Degrees of B.S., M.S., Geology and Petroleum Engineering. Formerly university faculty member. Field Experience. Address Box 3071. The OIL WEEKLY, Houston, Texas.

SOUTH TEXAS

FIRST REPORTS

Bexar County—P. P. Stacey and A. C. Moore's Walsh 1, 591 ft w line 250 ft s line of blk 6, Perez sur, lcn.

Calhoun County—Continental Oil Co.'s Rosen 1, begin nw cor of Juan Cano lge; thence 35 deg w of w line of lge 6310 ft; thence n 35 deg e 1850 ft, lcn. Coronado Corp.'s Welder 1, 1621 ft n line, 2664 ft e line of sec 8, E. E. Hidalgo sur, rigging up.

Duval County—Sam Cunningham's Lopez 1, 1300 ft s line, 1650 ft w line of sur 14, lcn.

Guadalupe County—E. T. Burton, Walter Garvin, E. P. Womack's Weil 2, 165 ft fr most nw'ly nw line, 450 ft fr most sw'ly ne line of 187.5-ac tr, E. de Los Santos Coy sur, moving on.

Jackson County—Humble Oil & Refining Co.'s Vanderbilt-State 1-B, 440 ft ne of sw outlet of Menefee Lake No. 2 and 224 ft s and se banks of Lake, Ramon Musquez gr, preparing to move in.

Nueces County—Renwar Oil and W. E. Fox's Knight 1, 330 ft n line and midway between e and w lines of s½ of sec 175, Bishop subd of Palo Alto gr, spudded.

Refugio County — Norsworthy Prod. Co.'s Wood 1, 3418 ft se line, 2486 ft ne line of 1003-ac tr, John Sinnott sur, Ab-68. Set sur csg. woc at 1000 ft. W. U. Paul's Hasselfield 1, 330 ft most s'lys line and 330 ft most w'ly e line of 354.65-ac tr in Pierce Rollins sur, Ab-358.

San Patricio County—Texas Gulf Producing Co.'s Hollan 1, 3300 ft n line, 3630 ft w line of 636.37-ac lse, M. McCauley lge, drilling 2336 ft.

Travis County—Burns Oil Co.'s Lundgren 1, 450 ft ne line, 150 ft nw line of 90-ac tr, Henry Martin sur, rigging up.

Webb County—W. W. Harvey and H. H. Henderson's Benavides 3, 330 ft s line 2687 ft e line of sur 459, lcn.

COMPLETIONS

Bexar County—Long Brothers Drilling Co.'s Applewhite 1, 220 ft s line, 200 ft e line of blk 7, county blk 4180, Fernando Rodriquez sur, 580 ft derrick floor, top navarro 963 ft, top Taylor 1407 ft, top Austin chalk 2003 ft, top Eagleford 2155 ft, top Buda 2196 feet, top Del Rio 2262 ft, top Georgetown, 2311 ft, top Edwards 2335 ft, temp abnd 2361 ft. Carl Pummill, Trustee's Dullnig 1, 350 ft e line, 1800 ft n line of 870-ac tr, Juston Esqueda sur 100, lcn temp abnd.

Duval County — C. G. Porter and J. B. Blanchard's Dinn 1, 330 ft n line, 330 ft w line of J. Morales sur 666, dst 2545-54 ft, rec water abnd 2600 ft.

Guadalupe County—E. T. Burton, Walter Garvin, E. P. Womack's Weil 1, 165 ft most s'ly n line, 165 ft most w'ly w line of tr, E. De los Santos Coy sur, top Austin chalk 95 ft, base Austin chalk 190 ft, top Buda 201 ft, top Edwards 360 ft, sand 198-211 ft, dry and abnd 400 ft. Clarence L. Fetty's Warnecke 1, 150 ft se line, 500 ft sw line of 100-ac tr in Vicente Duran sur, temp abnd at 764 ft. J. H. Hueners' Boecker 1, 330 ft n line and 330 ft e line of 317-ac tr, John Baker sur, abnd 1015 ft.

Hidalgo County—Pantano Petroleum Co.'s Harding 1, 590 ft n line, 660 ft w line of lot 4, blk 94, Missouri Texas Land and Irrigation Co. subd, La Mestena gr, distillate sand 7414-28 ft, distillate sand 7721-29 ft, distillate sand 7754-74 ft, distillate sand 8019-41 ft, comp flow 80 bbls 8074 ft.

Jackson County—John G. Mayo and C. M. Frost et al's Tucker 1, 2575 ft sw line, 466 ft se line of Raymond Musquez gr, top Catahoula 3543 ft, top Discorbis 4556 ft, top Heterostegina 4925 ft, top Frio 5106 ft, abnd 7473 ft. Steinberger Petroleum Corp.'s Drushel A-2, 455 ft n line, 455 ft e line of lot 10, Gale subd, Hayes Ranch, Rodriguez sur Ab-66, temp abnd.

Live Oak County—Luling Oil and Gas Co.'s Ryler 1, 950 ft sw line, 2590 ft nw line of J. Perevent sur 95, abnd 4000 ft.

McMullen County—C. C. Shumway and C. H. Burns' Shiner 5, 330 ft s line, 330 ft e line of w½ of se¼ of blk 8, C. C. Schumway subd, Shiner Ranch, top Upper Government Wells 1140 ft, top Lower Government Wells 1220 ft, abnd 1411 ft.

Medina County—Victor Ziegler's Haby 1, 1200 ft w line, 250 ft s line of 659-ac lse, W. G. Still sur 1, temp abnd 980 ft.

Refugio County—Phillips Petroleum Corp.'s Toland 1, e of e½ of ne¼ of sw¼ of sec 39, Johnson and Pugh subd of the Bonnie View Ranch, Oil and water sand 5744-49 ft, comp gas well est 20 million cu ft gas open flow.

Starr County—C. L. Foster's Garza 1, 330 ft s and 330 ft e line of n½ of lot 7, Danewood Oil Co subd Juris of Mier, temp abnd 83 ft. Dr. Ann Rinehart et al's Bowman 1, 330 ft n line, 330 ft w line of blk 13, McDonald and Campbell subd, sur 888, temp abnd at 3579 ft.

Travis County—Burns Oil Co.'s Bengstom 2, 5000 ft se line, 2450 ft ne line of Henry Martin sur 65, in 227-ac tr, abnd 1290 ft.

Webb County—H. K. Boysen and Brian Jones' Watkins 3, 330 ft n line, 330 ft w line of ne¼ of sw¼ of sec 20, San Casimero gr, abnd 850 ft.

Williamson County—M. Aldridge's Sloan 1, 350 ft s line, 400 ft w line of 100-ac tr, W. J. Baker sur, abnd 768 ft.

Zapata County—Joe Martinez's Bruni 2, 5874 ft nw line, 1369 ft ne line of Barrocito pasture, Borrego gr, temp abnd 355 ft.

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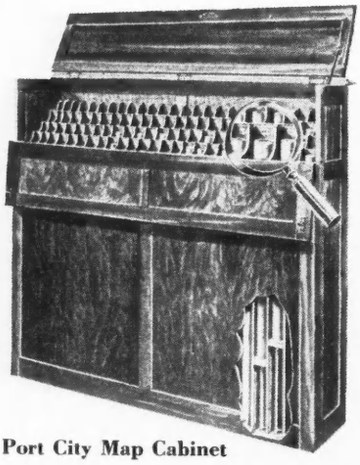
Port City Cabinet Works, Houston, Texas, has designed a new type of map filing cabinet which offers an accurate and convenient method of filing maps and tracings, especially those of larger than average size. This cabinet enables keeping drawings properly filed and protected, yet at the fingertips.

This new type of cabinet has individual wells two inches square for each map, eliminating any need for paper tubes. The cabinet is designed to accommodate maps from 42 to 54 inches in length, but by using adjusting blocks and rods, maps of shorter length may be filed in an orderly manner.



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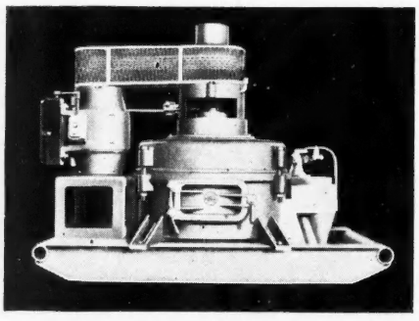
Mud Conditioner

MERCO CENTRIFUGAL COMPANY

Merco Centrifugal Company, 343 Sansome Street, San Francisco, California, announces a new compact, light-weight, transportable, centrifugal separator. This low-cost apparatus for conditioning rotary-drilling mud is to be known as the Merco Type A-24 Desander. It is particularly adapted to deep drilling operations and conditions where:

(1) Formations carry water or gas; (2) sand is encountered; (3) high transportation costs of weighting materials penalize drilling operations; (4) formations have a tendency to cave; (5) stuck drill pipe and casing cause expense and delay; etc.

Designed to extract substantially all sand from rotary-drilling mud, the Merco Type A-24 maintains a sand-free mud by taking advantage of the settling effect of the centrifuge. The desander subjects rotary drilling mud to 110 times the settling force of gravity, thus greatly speeding separation and effecting great savings in equipment wear, mud and weighting materials.



Merco Type A-24 Desander

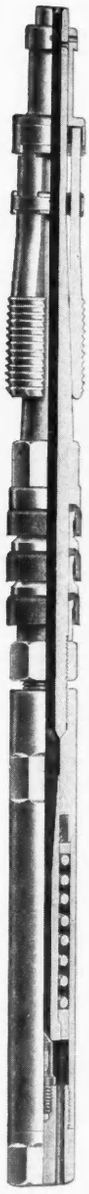
The new unit not only thoroughly desands the mud, but can also be employed to concentrate weighting material in the mud. With this apparatus mud that has lost weight and becomes sandy and abrasive need not be discarded. It can be operated by the regular drilling crew. Its installation is extremely simple and easy. By mounting it on a level, firm foundation, and connecting the power and feed lines, it is ready to operate. Equipped with rigid steel skids it can be readily moved from place to place.

Bottom-Hole Regulator

OTIS PRESSURE CONTROL

A removable bottom-hole regulator which adds surface-controlled rate of production to the advantages of bottom-hole choking has been developed by Otis Pressure Control, Inc., Dallas, Texas.

The opening through the Otis Removable Bottom Hole Regulator automatically changes when the size of the surface choke is changed to allow for increase or decrease in the rate of flow. Tubing flowing pressures are at all times reduced to a safe workable limit and freezing at any rate of flow is positively eliminated, according to the manufacturer. No well pressure is too high and no volume too large, it claims, to be reduced to safe workable flowing conditions by the new bottom-hole regulator. Surface heaters are not required, as the loss of heat due to expansion takes place in the high-temperature bottom-hole area.



Otis Bottom-Hole Choke.

Safety is one of the chief elements of the regulator stressed by the manufacturer. The regulator is run and pulled under pressure on a measuring line without disturbing tubing or casing. It is claimed to be the safest and most economical device built for variable control of high-pressure withdrawals. It is, in effect, a pressure-operated variable bottom-hole choke. The effective size of the bean varies with the pressure drop across the assembly and the pressure drop is controlled by a surface choke or regulator.

Mechanical operation is effected by a movable valve seat which is forced against a stationary valve by a heavy coiled expanding spring. Pressure of the flow above the valve is decreased in direct ratio to the increase in compression of the movable valve seat. This compression is varied by the use of different thicknesses of adjustment rings, increasing or decreasing the spring pressure on the valve seat. When the pressure drop required is more than 1500 pounds per square inch, two or more regulators

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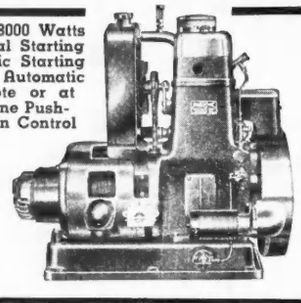

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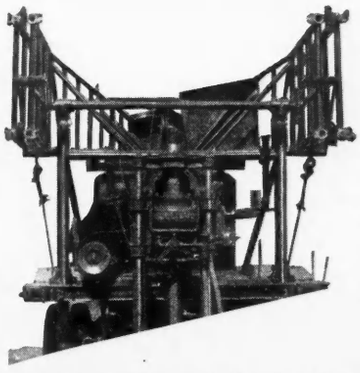

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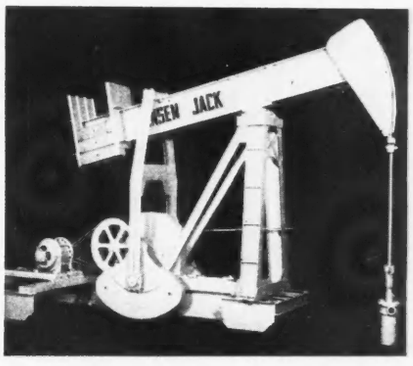
And our batting average is unrivaled. We have never failed to deliver homerun performance when drafted to pinch-hit—we do our best work with the tubing loaded and two wells out.

Stocks and Dealers in every territory, so that a word from you will bring us to bat with the right JENSEN JACK.



Let's play ball! No JENSEN JACK has ever been on a losing team. Pictured here: one of our new Model D Units.

JENSEN BROTHERS MANUFACTURING CO

Coffeyville, Kansas, U. S. A.

Export Office: 136 Liberty St., New York City, U. S. A.

MECHANICAL RUBBER GOODS AND SYNTHETIC OIL-RESISTING PRODUCTS

Houston's only exclusive jobbing manufacturing plant. Equipped with Calender, Mills, Tubers, Presses and Pot Vulcanizer.

Our modern facilities, factory trained men, and strict supervision of all work assures Oil Field Equipment Manufacturers of highest quality and efficient service.

MURRAY RUBBER COMPANY

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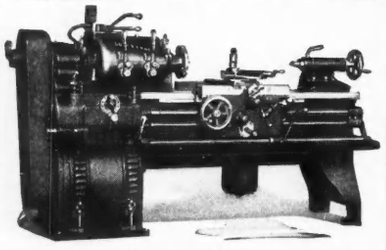
HOUSTON, TEXAS



The Boye & Emmes Timken Bearing Engine Lathe

COMPLETE LINES

Machine Tools—Metal Working Machinery—Bolt and Pipe Threading Machines—Electric Arc Spot and Butt Welders—Hand Power and Electric Traveling Cranes—Foundry and Forge Shop Equipment

D. S. MAIR MACHINERY CORPORATION

HOUSTON
4000 Clay
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Fx 1466

DALLAS
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Standco NO-SMOKE

STANDCO BRAKE LINING

for the easiest brake known. It "feeds off" evenly. Standco never scores brake rims. See page 2100 Composite Catalog.

Standco Brake Lining Co.

HOUSTON

NOTES FOR THE Equipment Buyer and User

are recommended by the manufacturer.

Running and pulling mechanism is the same as that already in use on Otis removable bottom hole chokes now in use, according to the maker. The regulating assembly threads on to the bottom of a special Otis removable bottom-hole choke in place of the usual bean and bean cage.

Constructed of metals highly resistant to corrosion and erosion, the regulator has been designed for long and economical service, the manufacturer declares, and the new equipment is said to fill a long recognized need in the oil and gas industries, especially when a variable rate of withdrawal is desired from a high-pressure well.

Pipe Fittings

DRESSER MANUFACTURING COMPANY

Dresser Manufacturing Company, Bradford, Pennsylvania, announces a new line of Super Service Fittings claimed by it to be the most effective product of its kind ever manufactured for use on pipe up to 2-inch.

Outstanding features, according to the manufacturer's announcement, are: extra-heavy construction; reserve sealing power for quickly making tight joints on undersized or corroded pipe; easy assembly on pipe already deflected; "stab" fit that makes disassembly unnecessary prior to installation.

The basic principle of the new fittings is like that of Dresser's Bolted Couplings, Style 38, except that threaded end-nuts, screwing up on a threaded body, are used instead of bolts to compress the resilient gaskets tightly around the pipe, effectively sealing the joint.

By the use of the new Super Service Fittings, Dresser engineers state, a constant, positive flexibility is maintained that permits the pipe to ride with and absorb all normal pipe movements.

Other advantages are: plain-end pipe only required—no threading; pipe-ends have full strength—no reduced wall thickness necessary; one jointing tool only—a pipe wrench; anyone can install, even under water if required; safety is inherent; exact pipe lengths, tedious lining-up operations, large excavations are eliminated; a union-type connection is afforded; fittings can be salvaged; and an economical joint is provided.

Super Service Fittings are manufactured in a complete line of regular and long couplings, 45° and 90° regular ells, plain-end and threaded-end 90° street ells, and street tees; sizes: ¾-inch I.D. to 2-inch I.D. inclusive.

Correction

The August 7 issue carried an item stating Wilson Supply Company recently opened a store in Arkansas City, Arkansas. This was an error. The new store was opened in Arkansas City, Texas.

Stanley P. Brown, Hughes Tool Company Head, Dies

Stanley P. Brown, vice president and general manager of Hughes Tool Company, died in a Houston hospital at 4:30 a. m., August 11 from pleurisy contracted about July 25.

Brown, who recently succeeded Col. R. C. Kuldell as active head of the company, started his association therewith about 19 years ago, beginning as a mechanic's helper.

He came to Houston 21 years ago as a flying cadet at Ellington field, aviation training camp during the World War, and was commissioned a lieutenant.

Shortly after going to work for Hughes Tool Company, Brown obtained a job as a roughneck in the oil fields to learn the business from that end. Following six months of such training he was made a salesman in the North Texas and Oklahoma district for the company. Later he became vice president and sales manager.

Crane Company Distributor for Chiksan Oil Tool Company

Crane Company has been appointed national distributor for Chiksan Swing Joints in order to keep pace with demand, according to Earle R. Atkins, sales manager, Chiksan Tool Company, Fullerton, California. In addition to swing joints, Crane Company will also handle barge and dock hose as well as other Chiksan products for industrial use incorporating swing joints.

In making this announcement, Atkins points out that Chiksan Tool Company will maintain its staff of sales representatives in principal cities, as in the past, and will continue its sales and service organization in the oil fields to handle all-steel rotary hose, circulating heads, disc bits, reamers, mud guns, etc.

W. H. Dunn Elected Secretary Of Raybestos-Manhattan, Inc.

William H. Dunn, comptroller and assistant treasurer of Raybestos-Manhattan, Inc., was elected secretary of the corporation at a recent meeting of its directors in New York. He succeeds as secretary the late Morton F. Judd, general manager of The Raybestos Division of Bridgeport and Stratford, Connecticut, who died recently.

In 1916, Dunn, who is also a director, became associated with The Manhattan Rubber Manufacturing Company, as comptroller. The company merged with The Raybestos Company of Bridgeport, Connecticut, and the United States Asbestos Company of Manheim, Pennsylvania, to form Raybestos-Manhattan, Inc., and became The Manhattan Rubber Manufacturing Division of that organization. Dunn is also a director and treasurer of The Manhattan Securities Company, which operates rubber plantations in Java. He was previously one of the staff of the accounting firm of Price, Waterhouse and Company. As secretary Dunn will continue to have offices at the Passaic plant.

NOTES FOR THE Equipment Buyer and User

Tulsa Exposition Expects Big Attendance of Foreigners

The earliest international attendance response in the history of the International Petroleum Exposition was received in Tulsa last week by President W. G. Skelly, in answer to the exposition's recent invitation to 26 oil-producing nations to exhibit and participate in the May 18 to 25 show next year.

Less than two weeks after invitations were issued the 26 embassies in Washington by Leslie Brooks, publicity director for the show, G. L. Depasta, minister-counselor of Greece, notified Skelly that his government had selected delegates for the 1940 show.

Brooks said that although the ministers have no authority to say definitely that their countries will be represented at the show, all said they would pass the invitations on to their bureau of mines with the recommendation that their countries send delegates.

"A majority of the ministers were acquainted with the show, and had talked with men who had attended previous shows, and the international interest in oil made them most cordial. Their enthusiasm promises one of the largest international representations in the history of the show," Brooks said."

A large portfolio invitation, 12 by 16 inches, containing the resolution passed by the United States Congress inviting nations to the exposition, a letter from Skelly, a picture of the proposed new international building, and other pictures and information about the show, was presented to the minister of each country. Each book was personally prepared for a particular country with the name of the country and its ambassador on the cover.

Congressman Wesley E. Disney arranged with the state department to make appointments with the embassies.

Effort will be made through the international delegates committee, newly appointed under the chairmanship of James H. Gardner, president of Gardner Petroleum Company of Tulsa, to secure double the usual hotel space for international representatives at the 1940 show.

The committee will also arrange tours through Mid-Continent oil fields and to refineries and gasoline plants.

Whitney Chain Moves Dallas Headquarters to Allen Building

J. W. Anderson, Dallas representative of The Whitney Chain & Manufacturing Company, who has previously operated from his home, has now opened an office at 902 Allen Building, Dallas, Texas.

Hercules Names F. G. Trescher Acting Manager at San Francisco

F. George Trescher has been named acting manager of the San Francisco office of Hercules Powder Company. J. B. Johnson, former manager, was recently transferred to the home office at Wilmington as director of purchases.

Trescher has been actively identified with the explosives industry for many years and has been a member of the Hercules West Coast organization since 1925. As an explosives engineer he has had a prominent part in some of the large construction projects in the west during the last 15 years. He was named assistant manager of San Francisco office under Johnson on March 1, 1939.

Machine Tool Show of Interest to Oil Men

Heavy-duty machine tools designed for the exacting requirements of oil field work will be among those exhibited at the Machine Tool Show to be held in Cleveland October 4 to 13, it is reported by Wendell E. Whipp, head of Monarch Machine Tool Company, who is president of the National Machine Tool Builders' Association.

"We are expecting hundreds of men from the oil fields to visit this show," Whipp says. "During the last few years tremendous strides have been made in improvement and design of machine tools adapted to the special needs of the petroleum industry. Oil men visiting the show will find machines capable of taking punishment to an extent far beyond those of only a few years ago."

The 1939 show will far surpass the last one, held in 1935. It will be in Cleveland's Public Auditorium, and will occupy five exhibit halls with a total

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REED'S 'B-R' DRILLING BIT WITH WIRE LINE RETRACTABLE CORE BARREL

HARD FORMATION HEAD (Interchangeable with Soft Formation Head)

REED 'B-R' Drill Collar and 3-Blade Drilling Bit with Core Barrel in position

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Cup makers since 1912

The World's Standard In Deep Well Cups

Toughest of tough — especially "tailored" for deep wells — the Dragon Composition Cup is pumpers' most dependable **"little friend"** in licking today's economy-in-operation problem. Reduces well-pulling — and other production interference — by longer-on-the-job, smooth performance, as proved by grueling tests in every deep-well field. Built to our own **secret** formula, by **cup specialists** . . . If you haven't used Dragon Composition, write for FREE samples . . . also Nobs Composition, for shallow wells . . . and Dragon Leather.

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"On Duty or in Competition . . as Fearless as the Dragon."

GOOD SERVICE for

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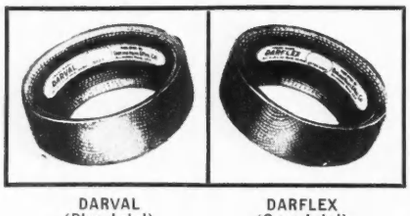
DARCOVA VALVE CUPS

were still in Good Condition!

Ten years and more is a long time—a long time for a single set of valve cups to give service on an average of three hours a day—**six days a week!** Yet that's the record set by "Darcova" in a well in Tulsa, Oklahoma. We'll send you complete details if you're interested—and you surely **should** be . . . if you want to benefit by the service and the savings for which these ORIGINAL COMPOSITION VALVE CUPS are famous!

DARCOVA
(Orange Label)
the standard for more than thirty years under severe service at all depths.



DARVAL
(Blue Label)
for super-service in wells to approximately 2,000 feet in depth.

DARFLEX
(Green Label)
the popular favorite for wells to 800 feet in depth.

Manufactured Only by

DARLING VALVE & MFG. CO.

Williamsport, Pa.

NOTES FOR THE Equipment Buyer and User

of over five acres of exhibit space. Thousands of machine tools will be exhibited. More than 30,000 out-of-town visitors are expected. They will represent all branches of industry in this country and many will come from foreign countries. Coincident with the show a series of evening meetings will be sponsored by the Machine Tool Congress and addressed by outstanding industrialists and engineers.

Parkersburg Announces Changes in Sales Personnel

The Parkersburg Rig & Reel Company has announced several important and interesting changes in the sales personnel of its organization, the effective date to be August 15.

H. L. Dickson, who has been located in Tulsa as district manager for the Oklahoma-Kansas district, has been transferred to the general sales office at Dallas, Texas.

E. L. Byer who has been serving in the St. Louis, Missouri, office as district manager for the North Central district, has been transferred to Tulsa where he will be in charge of sales in Oklahoma, Kansas, Missouri, Illinois, Indiana and Western Kentucky.

J. M. Baldridge, who has been serving as branch manager at Kilgore, Texas, has been moved to St. Louis, where he will serve as assistant district manager for Illinois, Indiana and Western Kentucky.

Emert to Represent Oil City Brass in Louisiana and Arkansas

John S. Emert has recently joined the sales force of Oil City Brass Works, Beaumont, Texas. He will be located at Jennings, Louisiana, and will travel Louisiana and Southern Arkansas.

JOHN S. EMERT

Rubber Catalog

Printing of the Fourth Edition of "Manhattan Rubber Products for Industry," a condensed catalog of mechanical rubber goods, has been completed by The Manhattan Rubber Manufacturing Division, 94 Townsend St., Passaic, New Jersey.

Described in this new catalog are hundreds of mechanical rubber products and special items, Particular emphasis is given belting, hose, packing, molded rubber goods, industrial asbestos friction material, rubber roll coverings, tank linings, and abrasive wheels. The catalog also contains transmission belt engineering data and technical information on other products.

Ball and Roller Bearings

The Gwilliam Company, 360 Furman Street, Brooklyn, New York, has released Catalog No. 16 on ball and roller bearings in the following applications: journals, thrust bearings, thrust step bearings, and industrial roller bearings. Specifications and prices are given on each bearing assembly available; several of which are illustrated.

HAVE YOU HEARD ABOUT THE NEW OTIS REMOVABLE BOTTOM HOLE REGULATOR?

SURE—It is the most economical means for safely producing high pressure wells at variable rates without freezing.

WRITE TODAY

OTIS PRESSURE CONTROL, Inc.

DALLAS, TEXAS

Squeaks from the Bull Wheel

Obvious Mistake

"Say, Bill, if you had five bucks in your pocket, what would you think?"

"I'd think I had on somebody else's pants."

Sad News

"Darling, do you know that soon there will be three sharing our little love-nest?"

"No, honey, are you sure?"

"Positively, I had a letter from mother just this afternoon and she is coming to live with us next week."

Narrow Escape

"Gosh, I need five bucks and don't know where to get it."

"Gee, I'm glad of that, I was afraid you'd try to get it from me."

The Customer's Right

"Sorry, madam, but licenses are issued only when your form is filled out properly."

"Why, I like your nerve, sir. We can get married, no matter what I look like."

A Form-Al Occasion

"Wasn't there an upset in that beauty contest?"

"No, it came out entirely according to form."

Labor Savers

I see you raise hogs almost exclusively down here. Do they pay better than corn and potatoes?

Wal, they don't, suh, but hogs don't need no hoein'.

What—No Monkey?

You know, my husband plays the organ.

Well, if things don't improve, my husband will have to get one, too.

Family Resemblance

"My dog is just like one of the family."

"Which one is he like?"

His Weakness

"Well, what kind of grades did you make in your finals?"

"All right in everything but one study and in that I am like Washington, Jefferson and Lincoln."

"Why, how's that?"

"I went down in history."

Playing Safe

"Can't you look a little more cheerful?"

"Not for this picture, I am to send it to my wife who is away on a visit and if I look too cheerful, she'll take the first train home."

How She Knew

The trial had reached a stage where the defendant's wife was allowed to testify in an attempt to establish an alibi.

"You are positive you know where your husband was on the night the crime was committed?" asked the prosecutor.

"Well, all I can say," replied the good woman, "is that if I didn't know, then I busted a good rolling-pin over the head of an innocent man."

Numb Skull

"That phrenologist is wonderful. As soon as he put his hands on my head he told me my business was very dull."

"He probably felt the depression."

Gets the Last Word

"Do you make good money as a ventriloquist?"

"Oh, yes, I have a good job now."

"Where are you working?"

"In a bird-store. I sell talking parrots."

Threatening Appearance

"Dey's a man outside who wants to see yo' about collectin' a bill. He would'nt give me his name."

"What does he look like?"

"He looks lak yo' bettah pay it."

Follow the Leader

A very small boy was trying to lead a big St. Bernard up the road.

"Where are you going to take that dog, my little man?" inquired a passerby.

"I—I'm going to see where—where he wants to go first," was the breathless reply.

Simple Arithmetic

The teacher had written 92.7 on the blackboard, and, to show the effect of multiplying by 10, had rubbed out the decimal point.

"Now, Alfred," she said, "where is the decimal point?"

"On the duster."

Escapes with Stomach-ache

Mrs. MacTavish: "My little boy has just swallowed a ten-dollar gold piece."

Neighbor: "Gracious, is the child in danger?"

Mrs. MacTavish: "No, thank goodness, his father's out of town."

Hide and Rawhide

"What is cowhide chiefly used for?"

"To hold the cow together."

He Was Psychic

"To sell goods, you must be a psychologist; you must be a psychic. Now I am a psychic. I can read the minds of men I call on. For instance, I know what's on your mind right now."

"Well, then, why don't you go there?"

Wanted Variety

"Hard work never killed anybody, son."

"That's the trouble, Pop, I want to engage in something that has the spice of danger in it."

Sand and sediment in your wells make them poor producers. Clean them out quicker at small cost with a MILLER—*The Sand Pump in World-Wide use.*

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS

To Meet Every Condition

- **BAILER BOTTOM** — With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.
- **SAND BOTTOM** — Used when tools are run and when well is shot to quickly remove loose material.
- **STAR BOTTOM** — Used for cutting the sand loose.
- **CHISEL BOTTOM** (In Pump) — With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Pages 1564-65 COMPOSITE CATALOG

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*Tretolite Co. Second Cover

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*Worthington Pump & Machinery Corp. —
Wyatt Metal & Boiler Works. Fourth Cover

Y

Youngstown Sheet & Tube Co. 8

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LAY·SET *preformed* or "NONPARELL" *non-preformed*

When you have many thousand dollars invested in a hole—use nothing but the best obtainable drilling lines. On rotary rigs an ever increasing number of drillers are depending on LAY-SET Preformed. They have found it to be easier to handle, faster in work, longer in life. For cable tool work "NONPARELL" has given unparalleled service in practically every field.

And in Hazard Green Strand ropes (made of Improved Plow Steel) every wire in the identifying strand is thoroughly bathed in a new, improved, green colored lubricant. Every wire and every strand in Hazard lines is fully lubricated.

BUY ACCO QUALITY *whether for Hazard Drilling Lines—American Welded and Weldless Chain—Ford Chain Blocks—Page Wire Fence—Page Welding Wire—Reading-Pratt & Cady Valves or any of the other 137 ACCO Quality Products.*

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ESTABLISHED 1846

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Wyatt's WELDED PIPE IS THE MOST PRACTICAL AND ECONOMICAL SURFACE CASING ON THE MARKET!

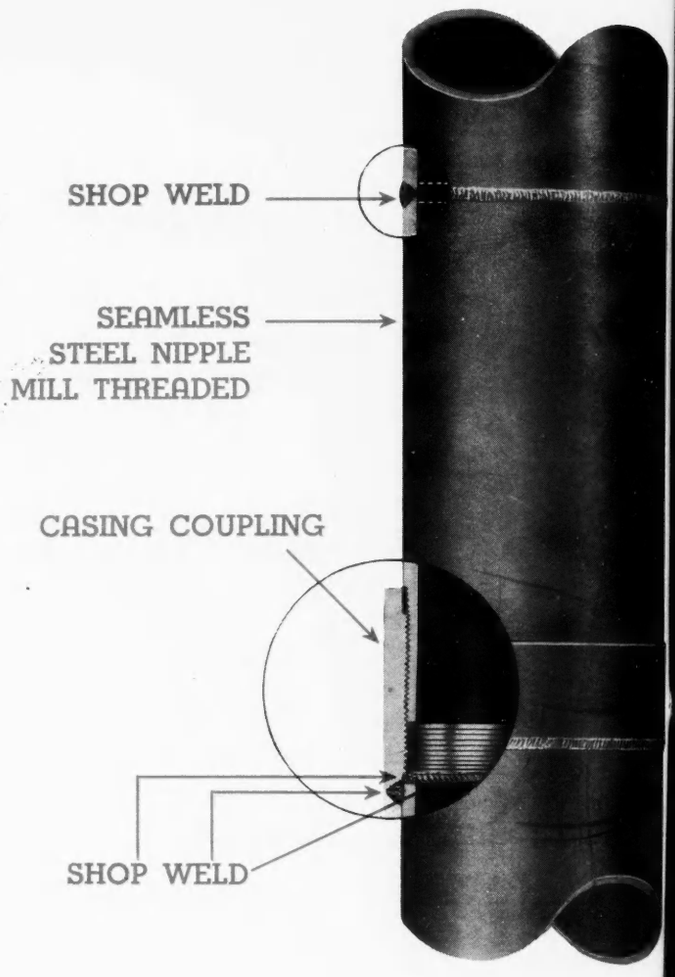
WYATT'S threaded and coupled surface casing has eliminated the need for expensive, heavy strings. It is furnished with bell and spigot ends, plain ends for butt welding, or prepared ends for Victaulic or Dresser couplings. All thread on nipples and couplings are **mill precision cut,** insuring perfect casing make-up. Special threaded nipples and couplings are shop welded inside and outside to WYATT'S welded pipe. Use standard casing slips and elevators . . . because the outside of this pipe is as smooth and of the same O.D. as mill casing.

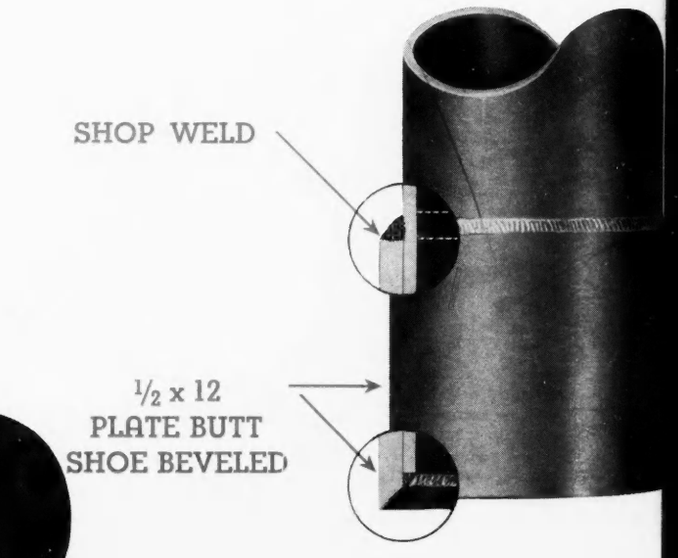
Furnished in approximately 30' lengths with I.S. and O.S. thread protectors and/or butt shoe at no extra charge. Sizes range from 10¾" O.D. to the largest diameter desired . . . and wall thickness is optional.

Use this pipe for short surface strings, and for the top part of long strings, screwed into heavier mill casing for the lower part. The collapse controls the setting depth . . . not tension. Table below gives approximate depths for top part of long strings, and length of short strings:

SIZE	Wall Thickness (Inches)	Weight per Foot (Pounds)	Factory Test Pressure (Pounds)	Approximate Setting Depths (Collapse)
13⅜" O. D.	0.25	35.05	598	390
16" O. D.	0.25	42.05	500	210
18⅝" O. D.	0.25	49.05	429	150
20" O. D.	0.25	52.75	400	120

Above sizes in stock at: Houston, Beaumont, Lake Charles, New Iberia, Houma





WYATT METAL & BOILER WORKS • PLANTS AT DALLAS AND HOUSTON

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OIL WEEKLY
INTERNATIONAL AUTHORITY FOR THE PRODUCING AND PIPE LINE INDUSTRY
THE WEEK'S NEWS INTERPRETED

ONLY SUPER STEEL

CAN WITHSTAND FORGING BY THE ROLLER PIERCING PROCESS

● No test to which steel can be subjected is more exacting or conclusive than the *roller pierced forging process* by which the steel used in Howco Floating Equipment is formed into tubular shape.

By its very nature, the roller piercing process, which is used on seamless casing and couplings, explores every ounce of the metal, brings to light the minutest defect.

It takes 100% sound steel to pass this test, but having passed it, the operator knows he is getting the utmost in strength and dependability. That is why he pins his faith on the top couplings when running a long string of casing. There is no greater strain placed upon any steel used in an oil well than is placed upon the top coupling.

The steel used in Howco Floating Equipment, as well as the forging method, is the same as in those top couplings.

HALLIBURTON OIL WELL CEMENTING COMPANY

J&L 100% INSPECTED SEAMLESS CASING ASSURES

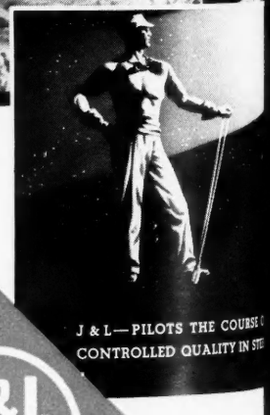
DEPENDABLE MAKE-UP • NO LEAKERS • LOW COSTS

When you stab every joint without delay — spin-in and tong-tight quickly and set a full casing string without a leaker — you save time and unnecessary costs. You do this on every string when you use J&L 100% Inspected Seamless A.P.I. Casing.

Here's why. J&L Seamless Casing is accurately rolled from J&L Controlled Quality (CQ) Steel and carefully checked through every manufacturing operation. Accurate, clean-cut threads on both pipe and couplings are produced on precision machines by trained and experienced operators. Every feature of J&L Seamless Casing and Couplings conforms strictly to A.P.I. specifications *and in addition* they must all (100% of production) pass the rigid J&L test of thread elements. This consists of a 100% inspection of all thread elements for pitch, taper, size and depth.

With the thread accuracy and wall and surface condition thus assured, J&L Seamless Casing is your best protection against unnecessary delay and high costs.

The J&L distributor near you carries the sizes and grades you use. See him for your next casing — ask for J&L 100% Inspected Seamless Casing.



J&L PIPE

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS
PITTSBURGH, PENNSYLVANIA

J & L—PARTNER IN PROGRESS TO AMERICAN IN

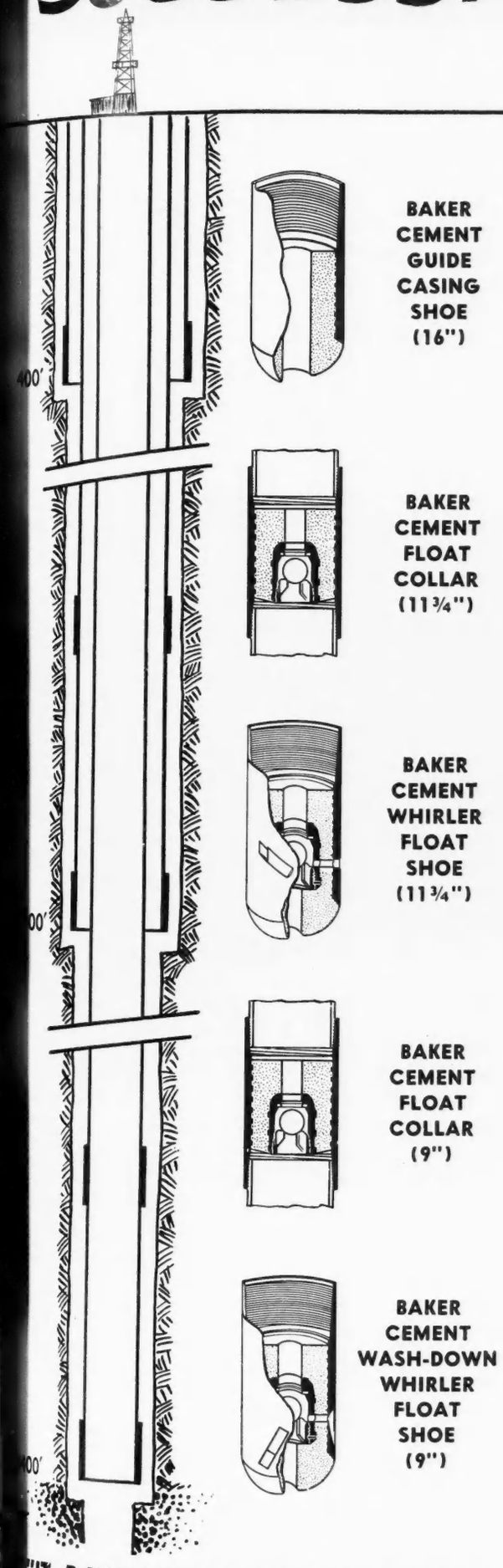
SUCCESSFUL RESULTS

are

INEXPENSIVE

WHEN YOU USE

BAKER CEMENT
GUIDING, FLOATING,
CEMENTING EQUIPMENT



BAKER CEMENT GUIDE CASING SHOE (16")

BAKER CEMENT FLOAT COLLAR (11¾")

BAKER CEMENT WHIRLER FLOAT SHOE (11¾")

BAKER CEMENT FLOAT COLLAR (9")

BAKER CEMENT WASH-DOWN WHIRLER FLOAT SHOE (9")

Figure It Out For Yourself!

Illustrated at left is the casing program of a well drilled recently in the North Belridge, Calif., field. The total cost of this well was approximately $100,500—the entire investment being directly dependent upon the safety and efficiency with which the casing was landed and cemented.

The cost of the necessary Baker Cement Guiding, Floating, Cementing Equipment to safely and efficiently do this job amounted to not 10% or even 5%, but approximately

FOUR TENTHS OF ONE PERCENT
of the total well cost.

That's why we say that *Successful Results are Inexpensive* when you use BAKER CEMENT GUIDING, FLOATING, CEMENTING EQUIPMENT . . . as in all cases, the cost of the Baker equipment needed represents only a fractional part of the total well investment . . . yet the safety and efficiency with which this equipment does its job often determines the future of the well.

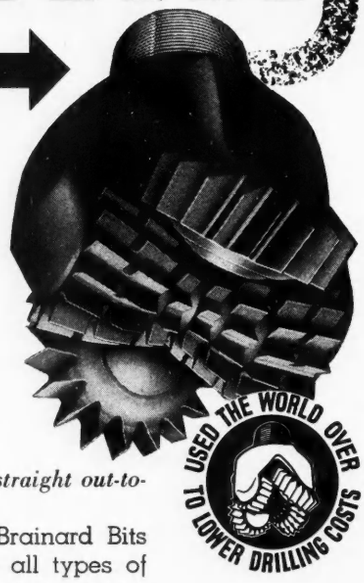
Whatever your field and casing program requirements may be, whether in shallow or deep wells, you will find a type or a combination of Baker Cement Equipment units that will prove most suitable for landing and cementing the casing *safely, efficiently* and *inexpensively.*

Complete details concerning the exhaustive line of Baker Cement equipment for landing and cementing casing will be found on pages 231 to 242 of the Baker Section of your Composite Catalog.

BAKER OIL TOOLS, INC.
Box 71, Huntington Park, Calif.
Houston, Texas

"IT PAYS TO REMEMBER THAT WHEN YOU BUY BAKER YOU BUY THE BEST"

TOUGH BITS FOR TOUGH JOBS EVERYWHERE



● Over-seas drilling projects are no soft snap. It takes plenty of equipment to tackle these jobs — plenty of machinery, supplies, manpower and time. These items, coupled with heavy transportation expenses, rocket development costs!

That's why, on these tough jobs, operators are standardizing on Crum-Brainard Roller Bits for drilling *better* wells—*less* expensively. These bits *drill faster with less weight,* stay on bottom longer, and give *more straight out-to-gauge hole* in all formations.

And speaking of formations, Crum-Brainard Bits are now made in *four* types to meet all types of conditions. So order a supply today for your current drilling projects. See for yourself how they'll boost your drilling efficiency—*and lower your drilling costs!*

Write for descriptive folder.

Crum Brainard

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PETROLEUM DICTIONARY

By HOLLIS P. PORTER

A Registered Engineer

This work grew out of a demand for some source of definition for the terms used by the petroleum industry. It contains over 3,000 definitions of words used constantly by all phases of the petroleum industry. It was published in 1936 and has found its way into engineering departments, legal departments and land departments of producing concerns, as well as to the desks of executives of the petroleum industry.

Manufacturers also find it valuable for reference. Advertising agencies find it a valuable addition to the library.

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THE GULF PUBLISHING CO., P. O. Box 2811, Houston

LOOKING AHEAD

WITH THE EDITOR

The Human Element in Oil Well Pumping.

NOT all the problems of pumping crude to the surface have to do with the mechanics of lifting. There is a human side to this work that is as important as good equipment and sound operating methods. There must be direction of effort and a closely knit unity of purpose between manufacturers, engineers and pumps.

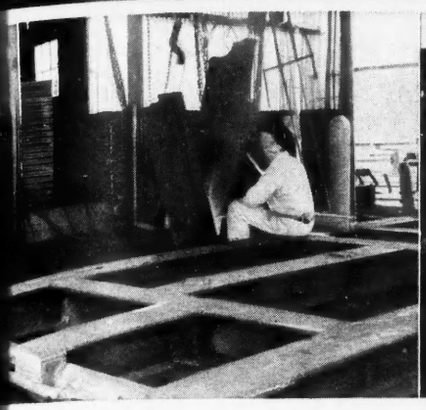
Unfortunately, the effort cannot be directed by hard and fast rules, nor can unity be obtained by the same treatment in all instances. The most expensive up-to-date equipment available, the best engineering advice, and good pumpers do not guarantee either efficient or economic production unless all three human factors work together.

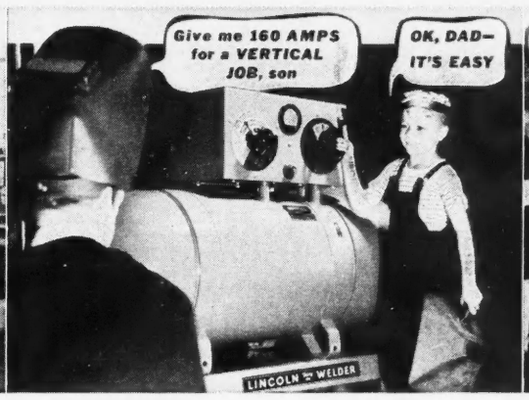
How these three important human element phases may be best tied together to achieve the utmost in pumping efficiency is the subject of our next pumping series article, which is to appear in an early issue.

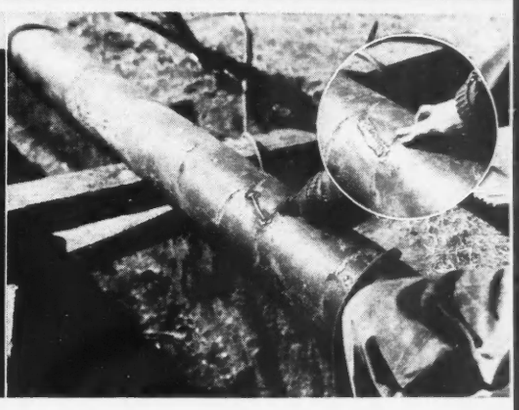
Since "men make things go, not systems" you will want to read this interesting article by Frank B. Taylor, who believes that attempts of the manufacturer, engineer and pumper to help each other would be a distinct advantage to all three parties.

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

DID YOU KNOW THIS *About Arc Welding?*



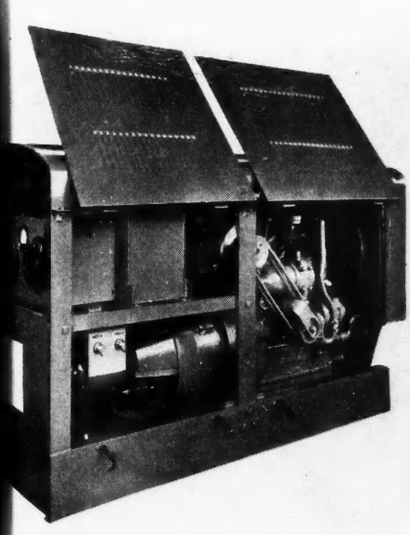


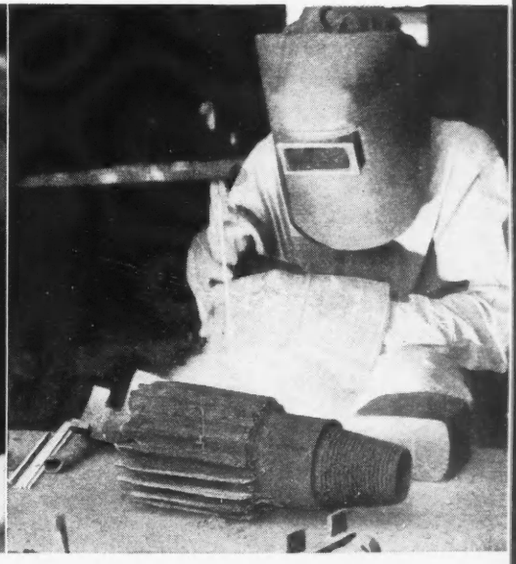


1. You can fabricate special equipment such as draw-works bases from standard shapes, plate and pipe. This unitizing base was *"Shield-Arc"* welded in the production shop of a large oil company in East Texas.

2. He may not be able to weld but this 7-year-old "helper" can set the New *"Shield-Arc"* because "Job Selector" and Current Control are *Continuous* and *Self-Indicating.* The TYPE of work and the AMPERAGE are marked right on the dials for maximum quality and maximum speed on every job.

3. Corroded gasoline lines, operating under 50% normal pressure, now are being reclaimed by *"Shield-Arc"* welding. On deep pits, a safe procedure is to tack a rod over the pit and then weld over the rod (see inset).





4. The new Diesel engine-driven "*Shield-Arc*" Welder. Used extensively by oil companies and contractors for field construction and repair work. Some mount stationary models on trucks; others use trailer models with steel or pneumatic tires.

5. You can fabricate bull plugs for headers by flame-cutting points in the ends of pipe and *"Shield-Arc"* welding them into an "orange peel" section as shown. Welds made with Lincoln "Fleetweld" Electrode are usually stronger than the parent metal.

6. Reamers and many other tools are built and reclaimed with "Toolweld" at substantial savings. This Lincoln Electrode deposits metal for cutting edges with the wearing qualities of tool steel.

For further details, consult the nearest Lincoln office or mail the coupon.

THE LINCOLN ELECTRIC CO.
Dept. L-619, Cleveland, Ohio

☐ Send details on (state application)

☐ Send free bulletin on New *"Shield-Arc"* Welders.

Name _____

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Company _____

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LINCOLN *SHIELD-ARC* WELDING

PRODUCES A STRONGER, MORE LASTING CONSTRUCTION FASTER, AT LESS COST

How Haystellite Inserts and Tube Rod *cut drilling costs*

THE bit shown at the right drilled 2,506 feet of out-to-gauge hole in the East Texas field. This bit went in at 100 feet, just below the surface pipe, and completed the well, making 2,441 feet of shale and shells, 25 feet of broken chalk and 40 feet of Pecan Gap chalk. It was well fingered and in excellent condition when pulled. The bit was hard-set with Haystellite inserts and hard-faced with Haystellite tube rod.

Variety of Sizes Available

Haystellite inserts are made in twelve sizes and seven cross sections. Haystellite tube rod, used for hard-surfacing the bit after it has been hard-set with Haystellite inserts, is available in five sizes of rod containing eight different screen sizes of tungsten carbide particles. Therefore, bit dressers can select the best combination of inserts and tube rod for each bit.

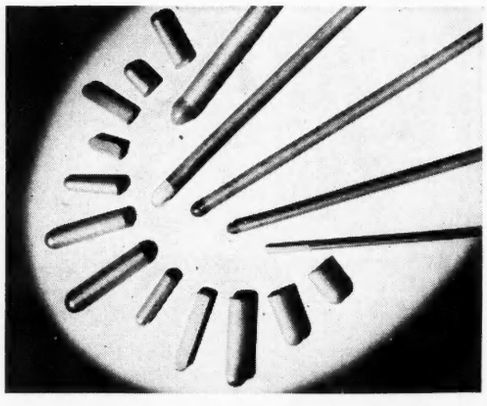
More Footage per Round Trip

Bits dressed with Haystellite tungsten carbide products cut drilling costs because they drill more footage of out-to-gauge hole per round trip—and take less time to do it. Write for the 36-page book, "Haynes Stellite Products in the Oil Fields," which tells when and how to use these products for best results.

FORMATIONS DRILLED

Shale and Shells .	2,441 feet
Broken Chalk . .	25 feet
Pecan Gap Chalk .	40 feet

2,506 feet with one bit.



Haystellite inserts and Haystellite tube rod are shown about one-third actual size.

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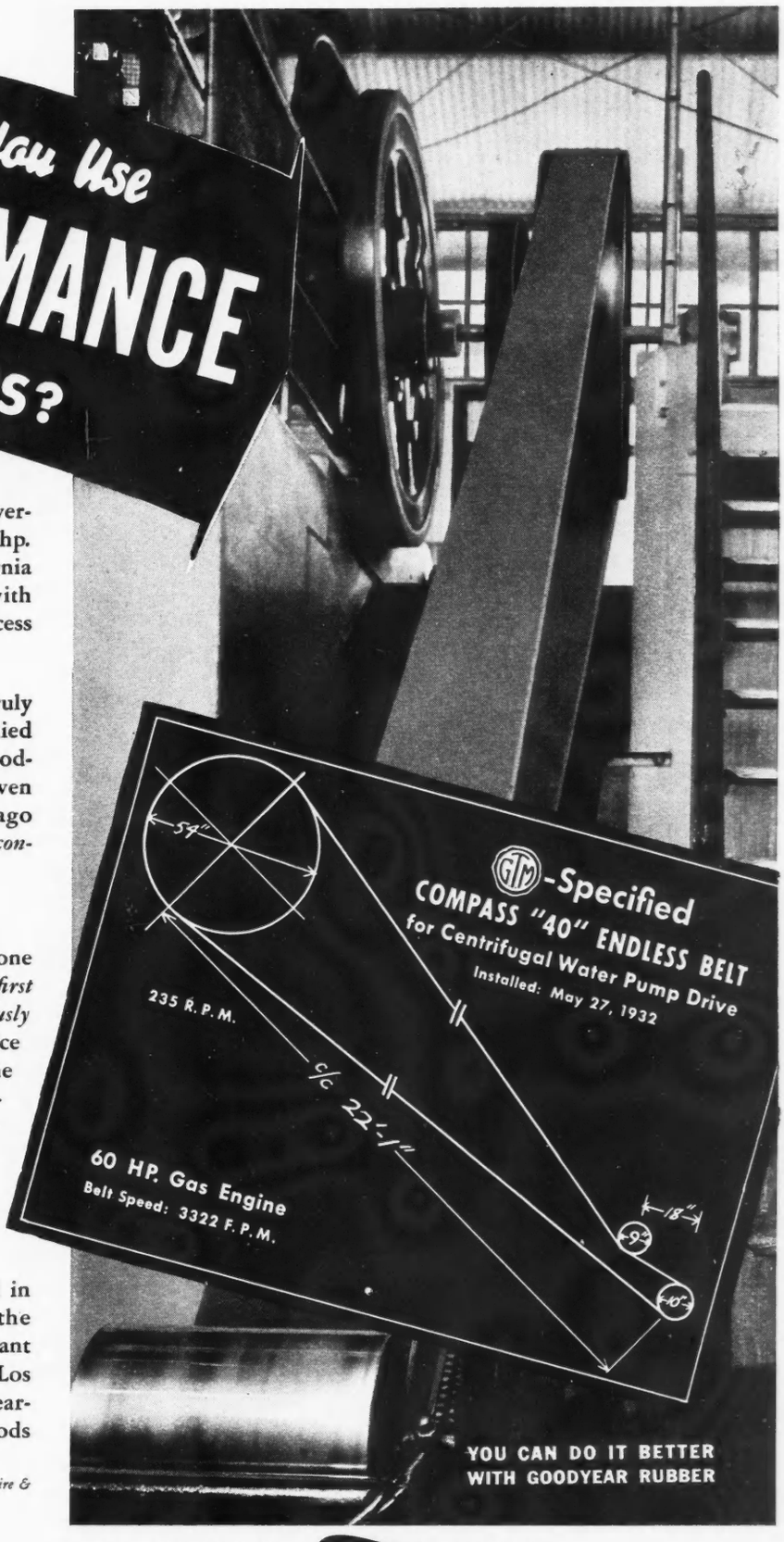
Haynes Stellite hard-facing rods and information on other Haynes Stellite Company products also are available through all apparatus shipping points of The Linde Air Products Company

Could You Use PERFORMANCE Like THIS?



THE best grade of "double" belts averaged three years' service on this 60 hp. centrifugal pump drive in a California operation — and gave that only with frequent shortening to remove excess stretch.

Then on May 27, 1932 a Goodyear truly endless COMPASS "40" belt was applied on specification of the G.T.M.—Goodyear Technical Man. For more than seven years until its removal a few months ago the COMPASS operated this pump *continuously* 24 hours a day.

Cost 25% less!

More than twice the service with none of the trouble—*and the* COMPASS' *first cost was 25% less than belts previously used!* That's typical of the plus service COMPASS belts are delivering on the petroleum industry's hardest drives—a plus made possible by COMPASS' patented balanced construction that insures a truer running, practically stretchless belt.

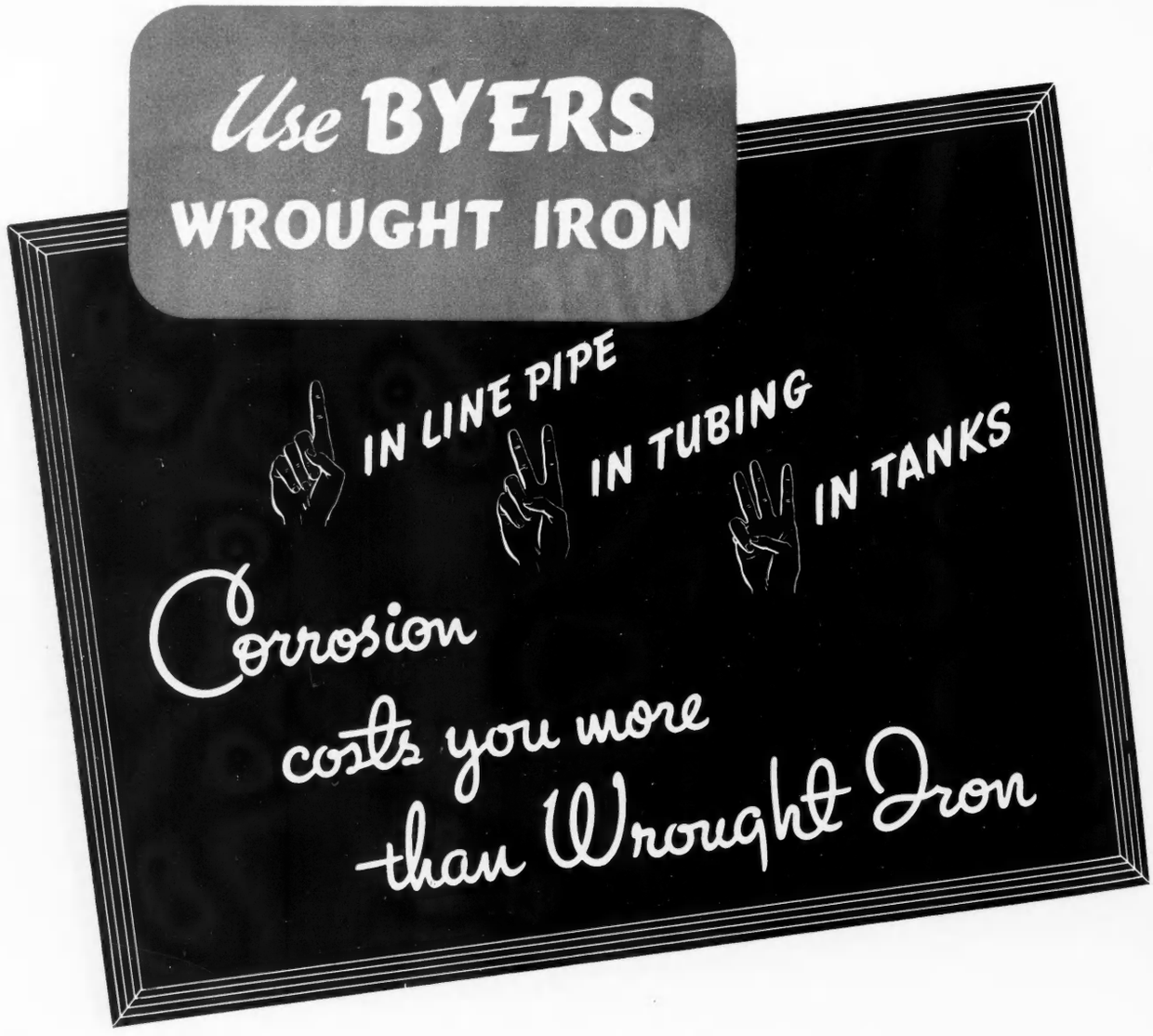
For similar long life and economy on all types of belts and hose used in producing and refining, consult the G.T.M. To bring him to your plant write Goodyear, Akron, Ohio, or Los Angeles, California—or phone the nearest Goodyear Mechanical Rubber Goods distributor.

Compass—T. M. The Goodyear Tire & Rubber Company

Centennial of Charles Goodyear's discovery of vulcanization

THE GREATEST NAME IN RUBBER

GOODYEAR



Oil men, they say, like facts when they buy. O.K.—consider these:

1. A 120 mile wrought iron pipe line was recently dug up after 32 years' service. It was resold for its original cost . . . and the purchaser said it was "just as smooth as the day it came from the mill."

2. A producer whose tubing had been lasting 107 days switched to Byers Wrought Iron. It lasted 234 days.

3. Reports of a field service test on lease tanks showed service ratios of 2.87 to 1 for wrought iron bottoms; 3 to 1 for wrought iron side sheets; and 4.2 to 1 for wrought iron decks.

These are individual instances . . . but not isolated ones. Similar reports are available on pipe, tubing and lease tanks from a number of sources. They all indicate that wrought iron lasts longer . . . and that corrosion costs you more than wrought iron.

If corrosion is causing you trouble and expense through high maintenance and frequent replacement, why not check up on how wrought iron has licked these problems for others. It costs nothing to find out and places you under no obligation. Just write . . . or get in touch with our nearest representative.

A. M. Byers Co., Pittsburgh, Pa. Established 1864. Oil Country Representatives: Houston, 506 Niels Esperson Building; St. Louis, 1270 Arcade Building; Tulsa, 1112 South Troost Avenue; New Orleans, 411 Lowerline St.

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